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ABSTRACT

The Proceedings begin with Dean Joshua Fishman's welcoming remarks. Dr. Norman Gordon introduces environmental deprivation and enrichment. Individual differences in the effects of early experience on later behavior are Dr. Donald Forgays' subject, whose paper is discussed by Dr. Lawrence Plotkin. Dr. Kenneth Clark analyzes the "cult of cultural deprivation." His discussant is Dr. Alfred Baldwin. Developmental theory and enrichment programs are reviewed by Dr. Martin Whiteman, and discussed by Mr. Kenneth Marshall. Summarization and discussion of the proceedings are by Dr. Edmund Gordon. Appendixed items include a summary of Project Beacon, and a listing of the Proceedings of Invitational Conferences on Urban Education and of the Ferkauf Graduate School of Education Reports. (EM)

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FERKAUF GRADUATE SCHOOL OF EDUCATION

ENVIRONMENTAL DEPRIVATION AND ENRICHMENT

EQUAL EDUCATIONAL OPPORTUNITIES
PROGRAM COLLECTION

PROCEEDINGS OF THE FOURTH ANNUAL INVITATIONAL CONFERENCE ON URBAN EDUCATION

APRIL 26, 1965

These proceedings are published through the cooperation of the New York State Department of Mental Hygiene, which supported the conference.

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WELCOMING REMARKS

JOSHUA A. FISHMAN, DEAN

FERKAUF GRADUATE SCHOOL OF EDUCATION

Given the variety of sometimes difficult, sometimes unpleasant, sometimes distressful things that Deans have to do from time to time, you may easily appreciate how nice it is to stand in front of this audience and to realize that I am about to begin something which should be a great pleasure. It *is* a great pleasure for me to welcome this large and distinguished group to the Ferkauf Graduate School of Education. I think we have prepared a very worthwhile program for you. This is our Fourth Annual Invitational Conference on Urban Education. If you don't remember it as *such* as the days go by, I hope you will remember it as an occasion at which you heard things you hadn't heard before, and at which you began to think about things that you hadn't thought about before. Each of us has had a number of such days in our lifetime about which we can say that something important was learned, something that has always remained with us. I hope this will be such a day. All of us get invited to go to more conferences than we should go to, more conferences than are really worthwhile. And, if we are not very careful, I'd say we can waste the better part of our lives in conference-hopping. I know that the program committee for today has taken great pains that this be a conference that you will think back upon afterwards as having been really worthwhile.

I not only have the privilege of welcoming visitors, but also the burden of coping with problems that arise. I see this morning that both the privilege and the burden have met face to face, because there are more people in this room now than can comfortably be accommodated in it. I could say that this was due to the fact that many of you mailed back your acceptances to us quite late, or I could say that many of you are here even without having mailed back the acceptances to us. But, instead of saying either of those things, let me assure you that you are all very welcome here. We have taken all the steps that we could think of to make you comfortable. We arranged that it rain last night so that it be cool today, but that was a matter of direct arrangement. We prayed that the loudspeaker would work this morning, and that we could open the windows from the top, because those things are often more difficult to manage than the weather. We ask that you all help by making room for each other, and for others that are still to arrive. I can only assure you that next September, when we are in our new quarters, the auditorium there will be sufficiently large to comfortably accommodate a group of this size.

"Wait until next year," is usually the chant that one associates with the sour grapes or the sweet lemons reaction of "losers" after a high school football or basketball game. In our case, I think that instead of being the chant of losers, it is a proud affirmation of many who believed they have won at least several rounds in what was a very difficult struggle, often against very great odds, to build a new quality institution in New York City in the face of appreciable adversity. In the audience here today, as I look out at it, I see many individuals who have helped the Ferkauf Graduate School of Education, helped it with advice, helped it materially, helped it with help that was greatly needed. I won't mention any names, not even the most obvious names for fear of being no more than obvious, but I would like to say to all of you, "God bless you for that." I think that we here at this school have a particular right to confer about, to research about, to teach about disadvantaged populations. For there are more than a handful here who know whereof they speak, and know it, not only intellectually, but in the most personal and in the most intimate sense. We at the FGSE know that an Operation Bootstraps can be successful, and we have been conferring about various aspects of just such operations once a year in terms of a national problem.

I mentioned before that this is our Fourth Annual Invitational Conference on Urban Education. Our school as a whole is only eight years old. Thus it should be clear that a concern which is four years old at a school that is eight years old is one that has considerable seniority, considerable prominence, considerable permanence in our little microcosm. We began to work earnestly, through Project Beacon, on problems of disadvantaged populations in 1961-62. That was shortly after former President Kennedy had launched the Peace Corps and quite obviously we were patterning some of our interests along similar lines. It even occurred to some of us to refer to some aspects of our work as leading to a "peace corps at home." There was no Office of Economic Opportunity in 1961-62. There was no Mobilization for Youth. There was no HARYOU-ACT. There was no network of Federal, state and local agencies pumping almost unlimited funds and personnel into this problem area. We are proud to have entered this field precisely on the basis of intellectual challenge and moral commitment and to have done so when the path to it and through it was not yet paved with grants or consultation fees. We are proud that three years ago, the year after we had started our first work in this problem area, we invited several of the institutions of higher education in New York City to try to come together so as to work cooperatively in the area of the disadvantaged, so that they would each know what the other was doing, and so that they could more reasonably decide whether to duplicate each other's efforts or to focus them somewhat differently.

We were unsuccessful at that time, frankly, in trying to bring together institutions much more prestigeful and much better established than our own, to work cooperatively in this area. We were very much their junior. Perhaps it was only right that we were not successful at that time, given the discrepancies that existed between our aim and our grasp. Nevertheless, we feel some pride that we made the effort at that time. We feel particular pride to see that effort come to fruition this year, under other auspices, of course, in terms of the Joint Center for Urban Education in New York City which brings together the City University of New York, New York University, Bank Street College of Education, New York Medical College, Teachers College of Columbia University, and this institution as the six founding institutions of what we hope will be a great research and demonstration center. At this very hour, on this very day, that Center for Urban Education is having its site visit from an important team of visitors from Washington. Although we didn't plan it that way, that is quite an appropriate coincidence. I understand that several of you will have to leave later on to be at the site visit and that several people who are tied up at this very minute because of the site visit will arrive here later on this afternoon. We wish the new Center great success today and every day. We are terribly proud of our relationship with it and of our contribution to it.

Four years ago we took our first steps in teaching, in organized research, and in organized dissemination on behalf of socially disadvantaged populations. It would be wrong for me to imply to you that I consider our work in this area terribly well solidified after five years. Project Beacon has been venturing into new undertakings and into untried areas every year of its existence. Its training programs are still being revised, as they must be almost annually. Its research efforts are still attaining focus; its Information Retrieval Center on the Disadvantaged and its other service efforts, many of them being service efforts to research rather than service efforts to the schools or school system, are still unable to keep up with the demands addressed to them. Its executive committee is still at a loss to find enough competent hands to manage all of the manifold opportunities as well as responsibilities that come its way. Nevertheless, once more we come to you at the time of the Annual Invitational Conference, which we consider to be an opportunity to give you an informal progress report on Project Beacon, with a sense of real progress since the previous year at this time. The more detailed presentation of this progress is found in the publications and in the newsletters and in the colloquia of Project Beacon. The proceedings of last year's Invitational Conference (After School Integration - What?) are now available. I hope many of you will find them interesting.

Let me mention one very significant aspect of progress through Project Beacon, one which is not like the others and is not represented through a publication. It is recognizable from the fact that today's conference has been planned by members of the Psychology Department of the Ferkauf Graduate School of Education. Those of you who are familiar with our Psychology Department, and I think very many of you are, know that it is one of the most theory oriented and research oriented departments in the city and that the FGSE is the only graduate school of education in the city that has under its jurisdiction a completely experimental department of psychology offering work in experimental psychology proper and in its related offshoots: experimental social psychology and experimental clinical psychology. That this department has taken its turn this year, as other departments have in previous years, in planning this conference, is indicative to me, and I think it should be to many, that good and proper psychology and good and proper psychologists are not necessarily limited to the small, neat, socially isolated, socially uncomplicated, somehow socially trivial experiments that we frequently urge upon our graduate students who are just learning to fly in the atmosphere of research and who, therefore, need easier problems on which to earn their wings. It is a sign to me that psychology, not unlike chemistry and physics and the life sciences, can grow to correspond to the size of the modern universe, that it can speak to real, full-blooded phenomena; indeed, that it can not only speak to them, but that it can be stimulated by the world that surrounds it rather than escape from it into problems that are easier and therefore more comfortable. Our program today implies to me that psychology can do these things and remain true to its birthright. This it must do, because psychology must not become another branch of education or another branch of medical science or another branch of social action. We at the FGSE, particularly those of us most closely related to Project Beacon, want psychology to turn a critical eye on the rest of the School and on everything that happens at the School (precisely as _we_ do in connection with psychology). We want it to turn the same kind of critical eye upon education as psychology turns on other fields, indeed as psychology sometimes turns on itself. We want psychology to question, in the spirit of critical identification, what it is that we know in connection with the socially disadvantaged. What is it that we are trying to test or to find out? What is it that must be looked into if we are ever really to become a field with cumulative knowledge, where the future does take place not only because it comes, but because we know what the past has been and how to profit from it. By attempting to do this today, for the concepts of environmental deprivation and environmental deprivation and environmental enrichment, the Psychology Department, I believe, has done a favor for psychology and has certainly done a favor for urban education.

I conclude my remarks with a warm word of thanks to all of you for coming; to the Psychology Department for having planned today's conference; and to the many distinguished psychologists from other institutions who have come to participate in it and to give us the benefit of what they have learned and of what they suspect. I also want to thank the psychologists and others at the State Department of Mental Hygiene for their co-sponsorship of this conference. The manifold efforts that have brought us together today represent what is certainly the best tradition of psychology. They give us the hope that social change will be recognized for what I think the greatest minds and the greatest souls have always recognized it to be, namely, not merely a _problem_ but an _opportunity_, a challenge from which no healthy organism can withdraw and from which no healthy body of knowledge can come away without really having been stimulated and without having benefited. Our science (psychology) and our society will both gain from a long, hard look at environmental deprivation and enrichment. I sincerely hope that many of you will turn to us and return to us in connection with psychological topics of this kind in future years.

PRESIDING

DR. NORMAN B. GORDON

CHAIRMAN, DEPARTMENT OF PSYCHOLOGY

FERKAUF GRADUATE SCHOOL OF EDUCATION

Thank you, Dean Fishman. A few months ago, it seems like many months ago, Dean Fishman suggested that the Psychology Department might sponsor the next invitational conference. And when I returned to the department, we were taken aback: how would the Psychology Department go about sponsoring a conference on urban education? There was a lot of scurrying about, and we decided that something had to be done. As time began to get shorter and shorter, we noticed the title. Since we had a young department and at times we were quite concerned about the facilities that we've had to carry out our programs, the title was appropriate to us in a way, that we were environmentally deprived at the start and in the process of growth had become enriched. We thought this might be quite appropriate as we looked about the field of urban education and looked at the problems that individuals are facing in attempting to improve their educational status. So that we feel that the topics that have been assembled today are both inwardly and outwardly directed. Without further ado, I' would like to introduce, Dr. Forgays. Dr. Donald Forgays, who has come to us from the University of Vermont, has spent a good part of his life on research on environmental enrichment in animals, and more recently in human beings. He will be our first speaker. His topic will be "Individual Differences in the Effects of Early Experience on Later Behavior."

INDIVIDUAL DIFFERENCES IN THE EFFECTS OF EARLY EXPERIENCE ON LATER BEHAVIOR

DR. DONALD G. FORGAYS

PROFESSOR OF PSYCHOLOGY - UNIVERSITY OF VERMONT

I wish, here, to make a progress report, as I have in the past, on two series of studies which have occupied our attention for several years. The studies are concerned broadly with the influence of early experience upon later behavior and, more recently, with an analysis of the nature of reinforcement. While our early efforts examined the process aspects of the phenomena, that is, the general statements which we can make about such behavior, we have lately become quite impressed with the apparent relationship which exists between subject characteristics and ability to profit from a program of early exposure and the manner in which such advantage may be reflected in specific behavior.

The latest studies of the first series use rats as subjects and have examined the effects of variation of specific type of exposure, time and amount of such exposure, and sub-species of rat. I will make a general report of these observations shortly. The second series of studies, though now of five years standing, is still quite preliminary. The observations are concerned with the behavior of young children in an elaborate playpen environment which delivers a good deal of sensory reinforcement for appropriate responding. I will describe this experimental setting and report on the results of two studies.

The rat studies involve exposing the animal to an enriched environment (free-environment) or to a sparse environment (restricted) for various periods during development. The free-environmental experience has been described sufficiently well in the literature; briefly, here, it consists of a large box, as compared with the ordinary living cage, and the box contains many "playthings" - simple metal and wooden objects which the subjects may run over, through, around, and so on. The rats are placed in small groups in this free-environmental box for a period of time varying from one to several weeks and removed to regular colony experiences for the remainder of the development period. They are tested, usually when they are about 120 days of age for "emotionality" - typically using the open field test, and scored in terms of activity, field penetration, defecation and urination - and for intellectual responding - using the Hebb-Williams maze.

We have employed two sub-species of rat in these studies - the hooded rat which has a pigmented eye and therefore good vision, for a rat, and the albino rat with the non-pigmented eye and therefore not very good vision, especially for distant viewing.

Free-environmental exposure times have included in one study, which employed albino rats, every three-week period from birth until 109 days of age (that is, 0 to 21 days, 22 to 43 days, 44 to 65 days, etc.,); in another study using albino rats: one, two, or three weeks after weaning as compared with three weeks at maturity or no exposure at all; and in a third study, in which hooded rats were used: one, two, or three weeks after the eyes are open (15 days) or at weaning (21 days) as compared with three weeks at maturity or no experience at all.

Since we are careful to provide all animals in such studies with equivalent handling experiences, it is usual that we find no "emotionality" differences at maturity among animals in a study. Such is the case here. We do find, however, that the albino animals are somewhat more "emotional" than the hooded, a finding which, I believe, is not in disagreement with the literature. On the Hebb-Williams maze, however, there are clear differences among the groups. Those exposed to the free-environment before maturity are clearly better adult problem solvers than those exposed at maturity or not at all. Even those animals receiving only a week's exposure at 15 or 21 days of age display better adult intellect than those receiving three weeks exposure at 90 days of age. Those receiving the free-environmental experience as adults are not significantly better problem-solvers than those not receiving the experience at all.

These effects apply to both the albino and hooded animal; that is, for both types of rat early free-environmental exposure is associated with superior adult problem solving. On the other hand, there are clear differences between the hooded and albino rats. The hooded animal appears to be a superior performer on the Hebb-Williams maze to the albino animal, whenever specific groups with comparable past experiences are compared. Interestingly, the restricted (no free-environmental exposure) hooded rat makes about as many Hebb-Williams errors as the enriched (early free-environmental exposure) albino rat, that is, if both are reared in the light; of course, the restricted albino rat makes still more errors, so the superiority of the hooded is maintained throughout. This is not so if all animals are reared with restricted light experience, as you will shortly hear. It is also not so if the animals are maze-run in the dark, as you will also hear.

After we run the rats on the Hebb-Williams maze problems, we usually run them on a series of problems in the same maze, but one in which we change the visual distance or near cues, the olfactory cues, and so on. We attempt in this way to discover the kinds of cues which, if changed, will be most disruptive to problem solving. We assume that such cues are likely involved in successful maze performance under typical running conditions. In the studies I have already mentioned, we have found that early enriched exposure is associated with the use of different kinds of environmental cues in successful maze running. The hooded animals are more disrupted by a change in the visual distance cues, while the albinos are more disrupted by a change of visual near cues. It seems, then, that the hooded animals with early enriched experience make greater use of visual distance cues in the superior maze performance while albinos with early enriched experience make greater use of visual near cues in their superior adult maze running. These results may not stagger your imagination. Since you know that the hooded animal has far better visual equipment than the albino, it is reasonable, indeed, that he will more tend to employ the stable visual distance cues to aid his maze performance while the albino will tend to use more the near visual cues or some other kind of near cue. In brief, then, each type of organism will profit from the early enriched exposure according to the capabilities which he has to begin with. Our own thinking is in this direction, but the picture is not quite so simple.

To study further the nature of free-environmental experience, we examined the adult problem-solving ability of the hooded rat provided with visual distance cue experience in early life as compared with such animals not allowed this experience. We accomplished this by rearing the animals in boxes with open mesh sides or in closed boxes which were lighted inside. In each case we had enriched and restricted groups. When we tested them as adults, we found no "emotionality" differences among groups, but did find on the Hebb-Williams maze that the two enriched groups were superior to the two restricted groups, and there were no differences between the two enriched groups and none between the two restricted groups. Recall that one of each of these was raised in an open mesh environment and the other in a closed environment. How can this be? Did we not already find out that visual distance cues contribute importantly to maze performance? Are both enriched groups using to good advantage the same cues in their maze performance? No! Disrupted cue analysis reveals that the animals reared in the free open environment use visual cues in general more than those animals reared in the closed environment, and especially visual distance cues. Closed animals use more near visual cues and olfactory cues. Thus, both open and closed reared free-environmental hooded rats are superior to their restricted counterparts, but, apparently, for different reasons. They seem to have profited from the rearing, but on the basis of the successful utility of different cues.

The last rat study which I will report here is one whose data have just been collected earlier this month. It is a thesis study being accomplished by Robert LaVallee at the University of Vermont. This was a more systematic attempt to assess the relationship between subject characteristics and the influence of early experience than those which had been accomplished previously. Hooded and albino rats were used as subjects. Half of each group was reared in the free-environmental setting and the other half in the restricted environment of small laboratory cages. Half of each of these groups were put in a sealed room in which good lighting was left on 24 hours a day; the other half were put in a sealed room in which good lighting was put on for one hour a day. Essentially this latter group was reared in the dark with sufficient light, however, so that there would be no retinal or thalamic degeneration. When all were mature animals they were tested for "emotionality" and displayed no significant differences among the various group comparisons. All had been handled a good deal during rearing. The Hebb-Williams testing was done initially in a sealed room which was well lighted, much like the rearing environment. On these maze problems the hooded animals over-all sub-groups are not significantly superior to the albinos - the first time that we have found this. There is, however, a significant interaction between type of animal and light vs. dark rearing. Essentially, if reared under the darker conditions, hooded animals score about the same as albinos reared in the same environment. If reared under light conditions, hooded animals are significantly better than albino animals reared in light. Hooded animals reared in the light are superior to hoodeds reared in the dark. For albinos, it makes no difference; those reared in the dark are the same as those reared in the light. What these results amount to, then, is that restriction leads to a poor problem solver in the albino animal and this is not influenced further by the amount of light stimulation provided him, within the limits of this study. The same is true for free-environmental experience for the albino. The hooded animal is generally better, however, than the albino. If he is given free-environmental experience in light or in dark or if he is simply provided a good deal of light experience during development, even in a restricted environment, he turns out well at maturity on the maze problems. If he is reared in the restricted environment with little light stimulation he turns out to be a poor problem solver later on; or, in other terms, one can almost make a hooded-type problem solver out of the albino animal if the albino is provided a good deal of enriched early experience, although not necessarily including visual experience. On the other hand, one can produce a hooded animal with typical albino problem-solving characteristics only by a combination of the restricted environment and little light experience during early life.

The story goes on. After these animals had been tested in the Hebb-Williams maze under normal light conditions, they were subjected to further testing in the same maze but in a completely dark room. The animal wore a collar treated with phosphorescent material and the grid floor of the maze was similarly treated. The experimenter could make out the pattern of maze running and count errors reliably after he had become completely dark adapted. Now, how will the animals fare? If our hunch is correct, the hooded animals will be more adversely influenced than the albinos by the change in light conditions which precludes the use of visual distance cues to aid solution of the maze problems.

Our hunch turned out to be quite acceptable, even though this was not at all a case of serendipity. In absolute error terms, each sub-group of albinos performed better than the comparable sub-group of hoodeds. A more interesting analysis is provided, however, by comparing the error score derived from running in the light to that reflecting running in the dark. For the albino groups, three of the four sub-groups decreased their error scores by from 25% to 30%. The fourth dropped only 11%; this was the group reared in the free-environment in the light. In short, the albino group most likely influenced during rearing by visual experience is most affected by change in light conditions during maze running. As for the hooded rats, a sorry lot, two sub-groups decreased their error scores by a small amount, 4% and 8%, and two demonstrated actual increases of error score, 4% in each case. You have guessed by now! The groups reared in the dark decrease while those reared in the light increase.

The results of this study and previous ones suggest to us that early enriched experience interacts with subject characteristics to determine whether the environment will have a beneficial effect, and, if so, the manner in which this will be accomplished. Hooded rats are typically better adult problem solvers than albinos of comparable experience. In past studies where animals were reared under light conditions, this generalization could have been made group by group. We have now added the limitation to this generalization: if hoodeds are reared under restricted and dark conditions they will be as poor as the restricted albino - not worse, mind you, but as poor. Both types of animal appear to benefit from enriched early experience, but, apparently, for different reasons; one because of the greater development of the use of visual distance cues, and the other, the use of near cues. Light experience does not seem to be especially crucial for the albino animal, while it appears quite important for the hooded. If the hooded animal doesn't have much light experience, then you have to give him the free-environmental treatment if he is to be a good adult problem-solver. The albino animal requires the free-environmental treatment if he is to be a reasonably good adult problem-solver, regardless of amount of light experience. Hooded animals who are deprived of the early visual distance experience still profit from free-environmental exposure, but it must be because they are using to advantage other cues presumably sharpened by their early experience.

Specifically, then, these results encourage the speculation that enriched experience in early life will aid the development of those characteristics which are prominently useful and ordinarily employed by the organism. If such characteristics do not develop because of a limiting environment, then other characteristics, lower in the organism's hierarchy, may develop to a higher degree than they ordinarily would, given a more typical developmental environment. Either of these patterns of development may then lead to superior adult problem solving ability. This possibility would depend, of course, on the nature of the adult tasks used to evaluate the effects of the early experience. These notions would appear to have relevance for a general theory of development and particularly for speculations concerned with the determination of the most efficacious training methods for the inculcation of sophisticated behavior patterns in the young. Our results are consistent with the idea of genetic limitation, but suggest a wide variation of development within that limitation, such development being dependent upon the type and amount of experience, especially that during early life.

As an aside, I might mention here that our new series of early experience studies, beginning in the summer, will employ a modified exposure technique over that we have used. Instead of the animal "going to" the experience, we will bring the experience to the animal. We have felt for some time that our exposure technique, large boxes versus small cages, did not provide sufficient control. All animals, in the future, will be reared in a small box. Each of the four walls of the box will open out on a long tunnel. Through a program of stimuli we will provide for a little or a lot of visual experience, distance and near cues, and the like. We will have a much better idea than presently of the differences in experience of our various groups.

So much for the lower animal research. I wish now to briefly describe the second series of studies which have concerned us over the past several years. This program involves human subjects and began as an inquiry into the nature of reinforcement. Eight years ago we constructed a super-playpen for young children; it was an eight-foot-square plywood enclosure with different kinds of manipulanda available to the subjects which, if activated, resulted in lights and bells and other types of sensory feedback occurring. We placed youngsters singly in this environment for short periods for a few trials and observed their activity. To study the utility of the playpen as a learning situation, beyond that involved in learning to manipulate such things as levers, we provided a dummy set of manipulanda beside each of those that activated the sensory change. A brightness discrimination - black versus white panels - was associated with the manipulanda so that the child could learn to receive the sensory payoff by operating the apparatus mounted only on a black panel. Children of both sexes and from 9 months to 5 years of age were observed under generally informal circumstances. Early results were promising, at least to the extent that such young children would remain in the playpen for periods of 15 minutes or so without fear, they were able to operate the manipulanda, and they appeared to be motivated to receive the sensory feedback. On the other hand, those subjects who were exposed to the playpen for several trials seemed to satiate on the limited sensory feedback possibilities, since they did not change from trial to trial. In short, they got bored. Moreover, this environment turned out not to be a good learning situation, since the black and white panels were fixed, thus allowing the subject to adopt position habits and avoid the brightness discrimination altogether. As one of our objectives was to study a variety of discriminations we were forced to modify the environment.

The second environment was considerably more complicated than the first. The original super-playpen was a plywood room within a "real" room. This proved to be disturbing to some children who knew that mother was just beyond a four-foot plywood wall. In addition, some of the mothers, sensing that their little Johnnies, and feeling, perhaps erroneously, that this game was some sort of intelligence test, encouraged their children over the wall - hardly a sharply controlled experimental situation. The revised colossal-playpen was a full room, 11 by 16 feet, with nine different gadget complexes mounted in colored wooden enclosures attached to the four walls. Each sensory payoff apparatus had two distinct sets of manipulanda; these, in turn, were electrically connected to relays and counters in an adjoining room which also contained a one-way window looking on to the playroom. Knife switches were provided so that either manipulandum for a gadget could be set to activate it. Four-inch wooden squares, easily changed, were attached above each manipulandum and formed the basis of the discrimination problem for the child. The sensory payoffs included:

a. different colored lights activated by pressing the correct levers.

b. a music box playing a tune ("How Dry I Am") when the correct lever was turned.

c. a hidden drum which could be sounded by pulling sharply on the correct of two cords.

d. an electric train on a 3-foot track mounted behind clear plastic; the train could be activated for 3-second intervals by pressing the right switch.

e. a unit containing white shielded lights and hand switches, but actually operated by foot treadles. This was an attempt to observe "superstitious" behavior in our subjects.

f. a sixth gadget was our counterpart of Aldous Huxley's "feelies." The child could reach his hand into one of two entry ports, feeling a thick piece of soft sponge rubber in the correct port and a smooth piece of plastic in the "incorrect" port.

g. a unit containing a number of interchangeable plastic-mounted pictures attached to a round disc which revolved with correct lever press allowing the view of a single picture through an aperture. The pictures were colored and of such objects as a teddy bear, a baby, an adult female, an adult male, etc.

h. two telephones connected to a third in the adjoining room. If the child spoke into the correct phone, the experimenter would speak to him for a few seconds and then hang up.

i. two window ports opening on to the adjoining room. If the child pulled the correct cord, the port would open allowing him a view of the experimenter (a young adult female).

You will recall that all of the manipulanda are connected to counters giving us an exact picture of the frequency of interaction between child and gadget and the number of correct as well as incorrect responses. Sequence of the child's activity is provided by observation through the one-way window.

In one series of studies, we have placed children who were from a little less than one year to a little more than 5 years of age in the playpen for from 6 to 10 acquisition trials of 10 minutes each, with a brightness discrimination to be solved. The trials occur at the rate of three per week and the correct manipulanda and discrimination squares are varied on a random basis.

In one study whose results I have already partly reported we have compared two groups of 4-year-old children, both sexes equally represented. One group consisted of children of middle class parents and the other of children of working class parents. Negro children comprised this latter group. Their behavior patterns in the playpen situation are quite different. An important finding is that neither group seems to get satiated in this environment. At the end of the trials most subjects are quite willing to continue and appear to have enjoyed the experience. There are gadget differences between the two groups. The "feelies" are not as attractive to our subjects as Huxley would have had us believe; this is true for both groups. The telephones are manipulated much more frequently by the working class children, likely because they are more novel stimuli for them. Both groups display superstitious behavior and equally so. And so on.

Over all trials, the middle class subjects make about 50% more responses than the working class subjects. This is more than just a matter of more diffuse activity on the part of the middle class children, since they also make more correct responses than the working class children. Remember, this is on the basis of over-all responding. Both groups display evidence of learning the discrimination, but the middle class subjects show it earlier and more stably. The maximum amount of time for any child in the playpen is less than two hours, total, so the learning would appear to be reasonably efficient.

There are response level changes over trials. The working class children increase their response rate over trials as compared with the middle class children who maintain a relatively stable rate throughout. At the end of the series of trials the working class children display a rate of correct response equivalent to that of the middle class children. In short, they have "caught up" with the middle class group on this relatively easy discrimination problem.

We have carried these observations further in some very recent studies, in line with our interest in studying more difficult discrimination problems within the same experimental design. We employed a shape discrimination as our problem - the familiar triangle versus circle. Wooden squares with these figures painted on them were mounted over the manipulanda and the placement changed from trial to trial on a random basis. Triangle was positive for half the subjects and circle for the other half. Two groups of four-year-old subjects comparable to those described already were employed. Results were similar to those reported for the brightness discrimination problem. Middle class children respond more absolutely and more correctly on the early trials; at the end of ten trials, the working class children are responding at the same rate and level of correctness as the middle class children. Both groups display evidence of learning the discrimination, with the middle class children showing the learning earlier and more stably.

We have taken this inquiry one step further. We have essentially replicated the shape discrimination study with four-year-old children of middle and working class parents. Before we put each child into the shape discrimination problem, he was exposed to about six trials in the playpen with the brightness discrimination problem. Initial differences on the brightness discrimination problem were found, as before, in favor of the middle class children. And as before, differences disappeared by the end of testing. Now when these two groups are exposed to the shape discrimination problem we find no over-all differences between the groups with respect to rate of response or level of correct response.

This is true for the initial as well as the terminal trials. In brief, then, the short prior exposure on the easy problem had wiped out the differences in performance of the two groups on the more difficult discrimination. There are many possible reasons for this influence. I would prefer not to speculate about them until we have collected more data, which we are in process of doing.

The results of these studies will be available in publication in the near future. I report them here to suggest that subject differences seem to be as important in humans as they are in lower animals with respect to possible profit to be derived from early experience exposure. It is dangerous in general to compare directly the results of human studies with those using lower animals as subjects. This is certainly the case in the present studies. We know nothing of the long-term effects of such early exposure in the human. I believe that this is equally true for most studies attempting to influence selectively the behavior of the child, such as the recent concern with language acquisition in the young child. We can say, however, that young children can learn, and quickly, in the playpen situation and without the signs of trauma which, I understand, is sometimes associated with some early learning situations. We have not begun to study the effect of such exposures in the first year of life; we plan to continue the exposures over much longer periods of time. We have gone from the brightness task to a shape discrimination. We will go on to more difficult shape discriminations, including letters, numbers, words, and so on. We wish to discover what level of complexity of learning can be managed within the play situation. We hope that the increased complexity will counteract the tendency to satiation which could develop with a large number of trials in the playpen. We have begun to employ, in another series of studies, much simpler gadgetry - a portable sensory feed-back apparatus tied in to a multiple button keyboard. The problems are concept formation and we are presently testing preschool children.

In all of these human studies, we are beginning to examine the importance for effective learning in the "play" situation of such subject variables as age, sex, socio-economic status, personality characteristics, and so on. We will attempt to follow up the possible long-term influences of such early exposures. We continue to be much interested in investigating at the human level the crucial-periods hypothesis with regard to programs of early experience.

In these studies, then, we have tried to point out the importance of subject characteristics, whether based genetically or experientially or, more likely, on both kinds of factors, in determining the benefits to be derived from a program of early exposure or in determining the manner in which subjects will profit from such experiences. We have suggested that the possibility of crucial periods existing for benefit to be gained from such exposures ought to be investigated further. Finally, we have proposed that we all be cautious in interpreting the results of early exposure studies, especially those employing human subjects. Without adequate long-term follow-up, with appropriate controls, we must be extremely hesitant in making generalizations regarding these influences.

DR. NORMAN B. GORDON:

Thank you, Dr. Forgays. Our discussant is Dr. Lawrence Plotkin. Dr. Plotkin is associate professor of psychology at City College of New York. Dr. Plotkin.

DISCUSSANT

DR. LAWRENCE PLOTKIN

ASSOCIATE PROFESSOR OF PSYCHOLOGY

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Not only am I impressed by the neatness of Dr. Forgays' experimental designs, but I must also commend him for his scientific caution and awareness of the complexity of the issues. Given his findings, I am sure most of us would make sweeping generalizations. Before going on to the specific experiments, I would like to bring together the work done on animals and children that has just been reported.

It is relatively rare for an investigator to attack both animal and human problems in a systematic way. While I agree with Dr. Forgays about the dangers inherent in applying animal findings to humans, animal experiments not only clarify human problems, they also provide a model of analysis which hardly ever is applied to environmental factors in human learning. From the experiments just described, I have drawn three requirements which Dr. Forgays has met and which I think researchers should meet.

The first of these is quite obvious, but rarely done, at least in human work. It is very hard to do in human work. But until it is done, we won't be able to know anything about the effects of early experience on later behavior in humans. The first one is the control and systematic variation of environmental objects and the interactions with these objects. The second requirement is that these objects be applied longitudinally at various periods of time over a significant portion of the organisms' life span. And finally the third is to test the effects of these modifications with increasingly complex behavior measures, and the use of analysis to enable us to know what really is responsible for whatever changes we find.

The first two requirements, in fact all three requirements, are more easily met in animal experiments. It has long been known that when the postnatal environment is held constant, the learning ability of rats is innately determined. Dr. Forgays and his wife have contributed to this old fact. But when heredity is held constant, infant experience determines the level of adult maze learning in the rats. The studies reported today are additional evidence that a free environment and extensive perceptual experience in early life have significant effects on later learning.

What is new in Dr. Forgays' report is the ingenious analysis of organismic variables within this general finding. Working out specifics of the enriched environment reveals complexities hardly suspected; and the following conclusions can be drawn from these studies: First, different strains of rats draw different things from the same early enriched environment. Secondly, within the same species with enriched environments which differ in distance cues, different cues are used in learning, although both groups learn equally well. And thirdly, by varying both environment and lighting, species differences can almost be overcome.

The experiments on children in the play situation reveal difficulties involved in cross-sectional analysis. Why should white children respond more often and more correctly in the initial stages of learning than Negro children? The fact that the Negro children catch up quickly indicates that the difference is not a stable one. The implication that the class difference is responsible is overwhelming. But of the myriad of factors subsumed under class or of race, which are responsible for the initial differences?

This point, I would like to speculate, since the discussant is more free to do so than the reporting scientist. First of all, it is not surprising that after relatively short amounts of training, middle- and lower-class children are equal in a sensory-motor task. As high-order mammals their genetic make-up insures learning and plasticity. The rat, a lower animal, is as sufficient as humans in learning simple discriminations, according to Lashley and Hebb. What environmental difference between Negro and white children, then, is responsible for the initial difference. It seems to me that animal studies do clarify human problems even if they do not explain them. Dr. Forgays has mentioned in passing the handling and carrying of rats which occurs in every experiment. We call this the "pre-experimental adaptation." I would suggest that the initial differences between the two classes of children are emotionality or attitudinal factors rather than an intellectual factor. Supporting this hypothesis is the fact that six trials in the brightness discrimination experiment eliminate the initial differences in rate and correctness found in the shape discrimination. In other words, it takes the Negro children longer, I think to adapt to the situation than the whites, for reasons that can only be speculated on but which have nothing to do with cognitive deficit.

I want to close by extending the nature of the problem. Benjamin Bloom, in one of his very important books, Ability and Change in Human Characteristics, has noted the disparity between the behavioral measures we possess and the environmental measures we possess. I'm speaking now about human behavior. The number of individual differences we can measure in an experimental situation is enormous: our instruments for measuring environmental differences consist of a few techniques for measuring social class and socio-economic status. In fact, as one reads Bloom's book, one gets the impression that the research task of the future is the working out of measures of environmental characteristics. I think we'll find, as Bloom suggests, much that passes for subject or organism variation may very well turn out to be environmental variation. However, this task for humans is so enormous that at this point I would not dare to estimate how long it will take to take specific environmental characteristics and relate these to specific behavior characteristics.

Why do Negro children use the telephone more often? I don't know how much it would cost to find out. But I warn you, every study done on race or class is faced with this problem. And I would warn you furthermore that to accept the ad hoc conclusion, however plausible, flies in the face of the kind of work Dr. Forgays has done. Years after we have worked out the specific characteristics of the environment and specific behavioral characteristics, we will have to work out clusters of environmental factors, how they affect specific abilities, and then eons later how clusters of environmental characteristics influence clusters of behavioral characteristics.

This is not only enormous, I suggest seriously it may not even be done. I'll end this with a quote from Professor Bloom: "The environment as the totality of forces affecting the individual is so complex as to be impossible to handle by present research methods. At the level of total environment each individual may be said to have lived in a unique environment and no two individuals have had the same combination of environmental factors." If we think of environment as giving opportunities for interaction and experience, it may be noted that no two individuals have had the same interaction and experiences.

DR. NORMAN B. GORDON:

Our next speaker is Dr. Kenneth B. Clark, Professor of Psychology, City College of New York, and Director, Social Dynamics Research Institute. The title of his paper is "The Cult of Cultural Deprivation: A Complex Social Psychological Phenomena." Dr. Clark.

THE CULT OF CULTURAL DEPRIVATION:

A COMPLEX SOCIAL PSYCHOLOGICAL PHENOMENA

DR. KENNETH B. CLARK

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DIRECTOR, SOCIAL DYNAMICS RESEARCH INSTITUTE

Probably there is no issue in American education which is being discussed more today than the issue of the education of the culturally deprived. Within the past three months, I think I have attended eight or nine conferences or discussions on education of the culturally deprived and I have been unable to attend about twenty more. I think that one of the problems of the education of the culturally deprived is that everyone is talking about educating them, but no one is doing it. Maybe one of the things we ought to do is stop having these conferences because I don't think there is very much more we can say about this problem. And the more conferences we have on them, the less time we have to work with these children.

The fact of the educational retardation of Negro children in public schools in Northern urban communities is well known and well documented. Retardation in fundamental subjects (reading, arithmetic, communication skills) has been documented by innumerable studies. Some of these studies have demonstrated that the degree of retardation increases as these children go up in the grades. The evidence is quite clear that the discrepancy between the norms of achievement of poor Negro children and the general norms increases from grade to grade.

There are a variety of explanations of this persistent finding. Historically, among the earliest explanations was that the poor performance of these youngsters was to be accounted for in terms of their inherent racial inferiority. At the end of the last century and the beginning of the twentieth century no one had any real question or doubt as to why Negro youngsters seemed to be performing below the level of white youngsters. It was the inherent inferiority of the groups from which they came. This interpretation seemed to be the dominant interpretation up until about the second or third decade of the twentieth century, even among social scientists and educators.

The research of Otto Klineberg in the 1930's resulted in a serious re-examination and a significant revision of this inherent racial-inferiority explanation. I am not sure that the Boaz-Klineberg research and interpretation influence the way in which we discuss the problem.

There remains a question, however, whether the modern scientific approach to the problem of racial differences has really deeply influenced our practices in our public schools. There is no question in my mind that it is no longer fashionable for educators to talk about the academic performance of Negro youngsters in racial terms, or in terms of inherent racial differences. But I am not sure that the beliefs or the feelings about racial differences are not still influencing what happens in our schools. I think maybe the chief practical effect of the Klineberg approach has been to change our words, change how we talk about these children rather than what we really do about them.

More recently it has become fashionable to attempt to explain the persistent fact of the academic retardation of Negro children in terms of general environmental disabilities. This may be the major contribution of the Klineberg approach: we now don't talk about racial differences; we talk primarily in terms of environmental differences. These explanations tend to emphasize such environmental conditions as the total pattern of racial discrimination and segregation which deprives the ability of these children to learn. We talk about economic and job discrimination, substandard housing, poor nutrition, parental apathy and lack of stimulation which generally reflect lack of educational opportunities for the parents themselves.

The most recent version of the environmental approach is cultural deprivation. This is a term which has recently come into the vocabulary of social scientists and educators. It is interesting to me, although it may be only a historical coincidence, that the term became fashionable only after the Brown decision of May 17, 1954. We have been searching the literature at the Institute during the past year and I'd like to share with you some of the synonyms for this term: culturally disadvantaged, the disadvantaged, the socially neglected, the socially rejected, the socially deprived, the educationally disadvantaged, the culturally impoverished, the culturally different. We even found one discussion of the problem that emphasized "rural disadvantaged." Generally, I think all of the studies are concerned with minority group children, lower status children, and low socio-economic status children. Very few of these studies, or very few of the papers that we examined in the literature come right out and say "colored children." And very few of them come right out and say "poor." Most of them try to find euphemistic synonyms.

Here are some of the factors which are alleged to be a determinant of the academic retardation of these children within the umbrella of the concept of cultural deprivation: overcrowded housing, deteriorated housing, poor hygienic conditions in the environment. A catalogue of slum conditions have been offered as reasons for the inability of these children to learn.

Some of the studies point to rather specific aspects of the environment. These usually pertain to the home, such as lack of education on the part of the parents, inability of the parents to provide sufficient stimulation for the child.

Specific conditions in the family have been offered as explanations for the inability of the child to learn to read in the primary grades, such as either inability of a parent to stimulate the verbal ability of the child by the inadequacy of the language of the parents, or the fact that lower class parents don't speak to their children; their children therefore are not stimulated to speak in the way in which teachers would like them to. Or even that there is too much talking in the home. Charles Silverman, in a recent article in Columbia College Today, specifies a home deficiency which retards the ability of these children to profit from school, in an interesting way that seemed different from most of the studies that we have looked at before. Most of the studies talk about sensory deficiencies, or understimulation in the home as the basis for the inability of these children to learn in the classroom. Charles Silverman talked about overstimulation in the home. He said that the children do not learn to read or pay attention in the classroom because there is so much noise in the culturally deprived home that the children have to protect themselves by cutting off their auditory sensory functions; they automatically block out noise. This starts in the home and it continues in the classroom.

Some of the studies emphasize the absence of things; not just stimulation, overstimulation or understimulation, but the absence of specific things such as pencils, paper, books. My colleague, Professor Plotkin, calls these the "nobooks in the homes" explanation of why these children do not learn to read. Not only do they not have books, they do not have writing material, paper or crayons. The picture of deprivation given by these theories is one of total stark, bleak deprivation. The degree of poverty in urban working-class Negro homes is so stark that the child has absolutely no sensory stimulation whatsoever, and no opportunity to go out and mark up walls or any thing of that sort. Four-letter words on walls must be a product of middle class children, who do have chalk or crayon.

Cultural deprivation has been made synonymous with stimulus deprivation. One of the most sophisticated students of this problem, Professor Martin Deutsch, talks about stimulus deprivation and cognitive deficit. One gets the feeling from Professor Deutsch's analysis that the deprivation is so stark that there is almost a neurological deficit which exists actually before the child gets into the classroom.

I must share with you my judgement of many of these studies. Many of these studies talk about lower class culture as if it were totally isolated from all communication with the rest of our society. Not one of these reports, to my knowledge or memory, ever talks about the reality: there is no subculture in our large society that is so deprived as to be unable to have some communication with the larger culture through our mass media, through television, through moving pictures, or through just being a part of this society in which people are at least able to see other people and listen to them. I would like to repeat, the sophisticated version of the cultural deprivation explanation of academic retardation for Negro children has seemed to have built up a mythology of cultural isolation that does not seem to be supportable by reality. If one reads the literature on the degree of isolation of the culturally deprived children which is allegedly an explanation for their inability to learn, one would not suspect from the literature that any of these children had any contact with television, radio, or moving pictures.

We sometimes find in literature explanations of lower class culture in terms of differences in motivation. One of the most common illustrations of this is the assumption that lower class subcultures demand immediate rather than delayed gratification. This ostensibly accounts for the fact that their children are unable to learn because to learn to read requires delayed gratification. I must say to you that after very careful search of the literature, I am personally not convinced that the various descriptions of the culturally-deprived or a subculture of poverty are first, either as real as they seem to be in words; or second, that they directly bear on the issue of the continued persistent, and increase in, retardation of these youngsters in academic subjects.

There are some basic questions which we must address ourselves to if we are going to be serious about the issue of more efficient education of lower status children. In what way does low socio-economic status, described in such specific terms as I have already stated, actually interfere with the ability of a child to learn to read or to do arithmetic in the elemtary grades? What is meant by sensory deficit or cognitive deficit as these are related to the ability of a human being to be taught? How remediable are these alleged deficiencies which these children bring to school? If they are remediable, how does one go about remedying them? If one can remedy these so-called deficits, what are the implications of the theories in the first place? What is the relationship between the methodology for educating poor children and the theories which were offered as to why they have not learned in the past? A rigorous and objective attempt to answer these questions might provide us with some answers that will not only increase our understanding of the problem of education of the lower status groups, but might contribute to our understanding of problems of education in general. It might also be important to make a rigorous objective study of these cultural deprivation theories in terms of methodology and in terms of the pragmatic problem of increasing the efficiency of our education of these children in terms of larger world problems, particularly what we can expect or not expect in terms of upgrading the level of functioning of underdeveloped areas of the world.

I'd like, however, to spend the remaining time I have not on these specifics, but on an analysis of some of the social-psychological complexities which I believe to be involved in the whole cultural deprivation cult and rhetoric. What about such social-psychological problems as the effects of social attitudes, expectations and stimulations of other human beings on the educational performance of these children? To what extent do these theories in their true and more sophisticated form obscure the basic factors and reasons for the education retardation of lower status children?

I would like to submit, and I hope to demonstrate, not in this paper necessarily, but in work during the next few years, that the cultural deprivation theories violate a basic law of science--the law of parsimony; that is, the requirement that one should not seek more complex explanations before one has checked out a simple explanation for a problem. To what extent therefore are these theories offering an acceptable alibi for pervasive educational default, a default in which the public school system permits and perpetuates educational inefficiency when dealing with powerless children or children from powerless roots in the society? To what extent are the social deprivation theories masking a simple and basic fact in the explanation of educational inefficiency in these lower status children, mainly the fact that these children, by and large, do not learn, and do not perform up to expected academic norms because they are not being taught effectively? To what extent are they not being taught because those who are in charge of teaching them do not believe that they can learn, do not expect that they can learn, and do not relate to them in ways that are conducive to their learning? If there is a specific determining variable for the educational inefficiency and retardation of these children, if there is the variable which is significant in the cultural deprivation set of hypothesis, it may very well be that the determining fact of deprivation is the rejection of these children in the classroom. This is my hypothesis.

I do not believe that the answers to these questions can be found meaningfully in rhetoric or continued speculative discourse. It may be that one of the things these children have been suffering from much too much already is rhetoric-rhetoric which captures them in the web of the words of the self-fulfilling prophesies. Speculation on this problem dares to reflect primarily the value and position of the particular speculator.

I would like to make it perfectly clear this morning that my whole approach to this whole cult of cultural-deprivation set of theories, probably reflects the fact that I am a Negro, that I am a product of a depressed group in our society, and that I look with the suspiciousness of the traumatized minority-group member on all theories which purport to explain why my situation cannot be any better than it is. Those who at present propose the cultural deprivation theories are by and large members of a more privileged group than the group with which I identify. I believe that they almost inevitably associate their privileged status with their own innate intellectual powers. The implicit class and caste factor in this controversy cannot and should not be ignored if we are going to be honest and objective in trying to understand a very serious educational problem. I think that the first step in a rigorous and objective study of this problem is that of accepting the fact that the problem exists within a context and is enmeshed in racial class, caste and self-image psychological problems. For example, it is a rather obvious fact that those who write and publish on this problem can do so because they themselves have been academically successful. And it is understandable that they should consciously or unconsciously associate their own academic success with such things as superior class, superior parents, superior motivation, superior intelligence, or some other sign of their own personal superiority or privilege and their personal status and advantages. One of the peculiar things about the discussion concerning the education of the poor is that the victims are not part of the discussion. And at best they have surrogates argue for them. I sometimes wonder about my own adequacy in this regard.

This problem is complicated by the fact that many of these individuals, confronted with large numbers of students whose present economic and social predicament is not unlike their own heritage, tend to react negatively or punitively. They tend to reject those students who remind them of their own origins. In this regard I must share with you one of the most disturbing findings of our HARYOU (staff). When we examined the attitude of Negro teachers toward Negro students in the Harlem schools we found the teachers on the average quite as rejecting, quite as full of stereotype as white teachers.

The role of empathy, the understanding and identification of the teacher with his students in eliciting maximum academic performance in his students, is a serious educational problem. It must be explored more systematically. I think we must explore it rigorously and systematically before we run helter skelter in embracing the cultural deprivation theories. It may be that cultural deprivation means difficulty in establishing empathy. The specific definition that might be really relevant here is the difficulty on the part of the middle class teacher in making that kind of empathic identification with youngsters whose origin he rejects. It may very well be that this specific aspect of deprivation, mainly rejection, does in fact directly bear on the capacity of the child to learn because it is reflected in what is taught or how he is taught or how he was related to.

It is reasonable to assume the problems of empathy and identification between Negro students and their teachers are complex and different in an essentially racial society. This has to be qualified by the fact that the pervasiveness of racism in our society can sow hatred among Negroes. The complex social mobility phenomenon among middle-class upwardly-mobile Negroes suggest that the issue is not to be understood simply in terms of race but in terms of the whole psychological complexity of race and class and self-hatred. And all of these I think add up to significant burdens on Negro children in predominantly Negro schools where they are relatively powerless victims of individuals who do not really identify or accept them as human beings. It is significant that these considerations are absent in the whole literature of the cultural deprivation discussions.

What are the facts that are relevant for a rigorous examination of this particular approach to cultural deprivation? I want to share with you evidence from three or four projects in which I have been either directly or indirectly involved during the past eight years. At the Northside Center for Child Development we have had an intensive summer remedial-reading program which started in the summer of 1955. Nearly three hundred youngsters had gone through that program. These are youngsters who came to us because they were woefully retarded in basic school subjects. They were economically inferior--over 90 per cent of the youngsters came from families that were on the Department of Welfare relief. Their academic retardation was further complicated by personal and emotional behavior disorders. They were all Negro and Puerto Rican youngsters. Their parents were burdened by the usual forms of oppression which are found in east and central Harlem, that is, congested housing, deteriorated housing, dirty streets. They came from broken homes--over 60 per cent of them came from homes without a stable father-figure. They were by all objective standards among the most depressed, deprived, oppressed human beings described in the literature which purport to correlate cultural deprivation in academic retardation. These youngsters were taken and subjected to an intensive program of four weeks of remedial reading and arithmetic. What were our findings?

The first summer our findings were so positive we were sure something was wrong, that there was an artifact. We just could not completely believe that it was possible to obtain by one hour per day, five days per week for four weeks, the kind of startling improvement in reading and arithmetic which we'd obtained.

Each summer, as the child was exposed to this type of remedial reading program without regard to his socioeconomic status or the extent of his deprivation, there was an average gain of eight months in reading and arithmetic in that four-week period, with a range of from four months to two and three-fourth years. The consistency from year to year removed all doubts from our mind that it was possible for these children to learn if they were taught.

We did find that there was some relationship between the amount of gain and the initial I.Q. The average I.Q. of these children was 90 and the range of from 64 to 124. Those with I.Q's. below 90 gained on the average five months in the four-week period. Those with I.Q's. between 90 and 110 gained on the average of eight months. Those with I.Q's. above 110 gained two years and three months in the four-week period.

We followed up these children in the school year and we found that there was no further gain when they were in the classroom. We were happy, however, to note that every child maintained the gains during the summer. At least the classroom situation was not a destructive one for him; it just didn't add anything. The best they did was to maintain their gains. I must confess that I have developed a type of cynicism about what was happening to our children in New York City classrooms; I was so cynical that I was happy to find that they maintained the gain and didn't lose from it.

Now another bit of evidence. I am sure that everybody in this room knows about Junior High School 43 which was the predecessor of the diluted Higher Horizons Project. The variables of cultural deprivation, the general and the specific variables were held constant. The only change was introduction of a program which involved increased motivation of the teachers, a sense of their specialness, and some traditional hoopla. My own personal view is, that aside from all of the aura, the context of visits and cultural enrichment, and the one psychologist and one social worker, the essential thing that happened in the 43 project is that for some reason, maybe because of the project itself, the staff in that school was motivated, stimulated, given some kind of aura in which to teach more effectively.

In three years between the first and last testing session of our first project group, in the J.H.S. 43 project the median student made a gain of 4.3 years in reading and arithmetic. The student who was retarded 1.4 years in 1956 was above grade level in 1959. These were consistent gains. In addition to a good high school performance, a greater percentage of the project group, (25 per cent of them), went on to college or some post high-school education. It never was above 4 per cent before. The drop-out rate decreased from 50 per cent to less than 20 per cent. The initial study concluded that 81 per cent of the study group had a greater intellectual capacity than was indicated by their initial I.Q's. and the I.Q's. that were actually found on their records.

I think the significant thing about the 43 project was that prior to the institution of this project these children like other children in ghetto schools were being seen as functioning at the limit of their educational efficiency in the light of their deprivation. The 43 project is significant, because the only variable that was manipulated was the variable of what happened in the schools. Nothing was done about the cultural deprivation or the community problems. Not a single broken home was made unbroken. Not a single home situation was adjusted; no more or less noise was alleviated in the home. The 43 project, like the next one that I'm going to talk about, reflected the ability of school people goaded by some non-school people with vested interests to do within the school what it was within their power to do, rather than using the community as an excuse for inefficient functioning within the school.

The Banniker project in St. Louis is headed by the Assistant Superintendent, who must be a curious man, by the name of Sam Sheppard. The bulk of the children are poor Negro children fitting the classical definitions of cultural deprivation. They should not be expected to learn and actually were functioning that way until the time that Sam Sheppard decided to say "the hell with the cultural deprivation approach" and see whether it was possible to get these children to learn. There is no evidence of the ability of Sam Sheppard to change the cultural background of these youngsters except what was within his power within the schools. He could not give their fathers jobs; he was not a marriage counselor; he could not put together any broken home. I must say that he did give some books. He gave a dictionary to those children who could not afford to buy them.

As a result of this intensive, yet curiously inexpensive and relatively uncomplicated approach, eighth graders of the Banniker school district went from an average performance of less than seventh grade, or between seventh and eighth to a reading and arithmetic level of 8.a.

The Banniker school district started with the same problem that all predominantly Negro schools started with, namely that there was general and increasingly pervasive retardation. After the Banniker project was instituted, within two years the Negro youngsters in that area are not now below grade level in any of the basic academic tool subjects. Most of the data seem to show that they continue to function above grade level.

My daughter, who was helping me on some of this research, pointed out that as far as she was concerned, the most important thing about the Banniker project was the proportion of Negro youngsters who were found on the different tracks. St. Louis is one of those school systems which categorizes children in terms of intellectual tracks. Prior to the institution of the Banniker project, 47 per cent of Negro youngsters were classified in the dullest track, and this was probably being explained in terms of their economic and cultural deprivation. (I suspect that this would probably be true in the New York City school systems if we dared to make that type of classification). Within two years after the project this 47 per cent was reduced to 10 per cent. This result was checked, by the way, on objective standardized achievement tests. That percentage has remained constant.

In all of these examples, it is clear that the one variable which has been held constant has been the variable of general environmental cultural deprivation.

The success of these programs must be ascribed to variables other than cultural deprivation. The common denominator for the success of these programs seems to be a rather simple one, mainly, more efficient and effective teaching. The evidence so far very strongly suggests that these children will learn if they are taught and they will not learn if they are approached as if they cannot learn.

One of the things that we will have to do before we issue our final report is to find some complicated jargon within which to state this rather simple observation because apparently nobody is going to take us seriously until we get some adequate term that would make difficult the concept that if children, poor children or Negro children or immigrant children, are taught, accepted, respected and approached as if they are human beings, the average performance of these children may approach and eventually reach the norm performance of other human beings who are so taught.

I think maybe I ought to summarize by saying that I believe that the cultural deprivation theories came out of a liberal tradition. But I see case after case, demonstration after demonstration, that if human beings are taught, by and large they learn. And if they are not taught they do not learn. When they do not learn we find all kinds of alibis to explain why they are not learning. I repeat that I wish that it were possible for me to find a complete Parsonian neurophysiological or medical formulation for the simple statement that Negro children and poor children who are rejected will continue to be educational casualties and that the only way our society can do an effective and honest job of human engineering is by actually finding the way to accept these children and to teach them.

DR. NORMAN B. GORDON:

Thank you, Dr. Clark. Our discussant is Dr. Alfred L. Baldwin. Dr. Baldwin is professor of psychology at New York University. Dr. Baldwin.

DISCUSSANT

DR. ALFRED L. BALDWIN

PROFESSOR OF PSYCHOLOGY

NEW YORK UNIVERSITY

I think Dr. Clark has done us a real service this morning, in pointing to the case with which we can oversimplify our explanations of the effect of environmental factors on intellectual achievement. And he has certainly pointed very accurately, I think, to the fact that the concept of cultural deprivation as a single variable is very suspect; that if there is cultural deprivation, it's a many faceted phenomenon, and that very likely each of the facets which is hypothesized about the culturally deprived also occurs in other kinds of environmental circumstances which are not labeled culturally deprived. If it is true that the noise level is so high in East Harlem homes, or that the child has to shut out stimulation, or that the child has to move so fast that he doesn't have time to stop and think, or a variety of the other possible mechanisms by which noise level might be expected to interfere with learning or with acquisition of cultural information values, this surely is not the only place where there is high noise level. And that, we could very well look to other circumstances to see whether in fact this particular factor has any demonstrable relevance to educational achievement. Certainly the lumping together of a multitude of different kinds of environmental aspects and calling it all cultural deprivation can hardly help do anything but obscure the problems from the point of view of research, although from the point of view of social action it may be a perfectly acceptable kind of clustering that needs to be recognized.

I think that Dr. Clark has also done us a service in pointing to the various ways that the defensiveness of people who are not from culturally deprived homes, or the defensiveness and the self-hostility of people who are, can, in fact, lead to overemphasis, to attribution of the consequences to some of the possible factors leading to the ignoring of other possible factors. And I certainly couldn't agree more with the first basic question that Dr. Clark raised: How do noises actually interfere with the acquisition of educational achievement of cultural knowledge and of cultural value? In fact, I think that it wouldn't even be necessary, and I judge that he would too, in the light of his later remarks, it wouldn't even be necessary to assume that it did interfere. But, by what mechanisms, through what day by day interaction of the child with his parents, with his siblings, with the adults in his lower socioeconomic status environment, by what mechanism does the acquisition of cultural norms or information or skills develop or fail to develop? And, of course, exactly the same problem as a research problem should be asked about every other kind of environment. Because we do have a considerable body of information about the effects of various kinds of home environments on various aspects of development.

I don't think Dr. Bloom is accurate in pointing to such paucity of information about the environments. In fact, I think there is a great deal known about environments, but there is very little information about how they actually operate in a day-to-day level where they must actually be operating in terms of producing learning or reinforcing, punishing, inhibiting, providing models or providing the answers to questions: these are the mechanisms by which an environment impinges on the child and we must spell out the details of that interaction and the way it impinges before we are going to understand the mechanism of cultural deprivation that exists or any other kind of environmental personal relationship.

It seems to me, though, that Dr. Clark is actually substituting another kind of cultural deprivation for a first kind of cultural deprivation. He is essentially hypothesizing that this kind of cultural deprivation occurs in the schools and he calls it simple. Well, if he is looking for complexity, I would suggest that the complexity of how the ways that a teacher rejecting a child fails to teach him is just as complex a problem as anybody needs to face. We have to also know how does in fact the day-to-day interaction of a child with a teacher in the school system lead to his acquisition of knowledge and of principles, and of skills that enable him to get more knowledge and more skills on his own. How does this take place by way of the day to day, moment by moment interaction of the teacher and the child, and the child with other children, and the child with his equipment. Now, as Dr. Clark said, these teachers don't have bad intentions. And by and large, whether the teachers are short-sighted or misguided, they don't in any case have bad intentions. And therefore, if we are going to do something about it, we have, I think, two alternatives. One is a massive kind of psychotherapy with teachers to change their attitudes. Another, which seems to me more reasonable, is to actually spell out many of the kinds of day-to-day things by which this inefficient teaching, as Dr. Clark calls it, takes place. It isn't simple to say it's inefficient teaching. If we could really describe what inefficient teaching is we would have made a tremendous stride in doing something about it and doing something about inefficient teaching in other kinds of school situations too, not necessarily with the supposedly culturally deprived child. Empathic identification with a child is not a simple concept. The ways it actually affects the day-to-day interaction of the teacher and the child is tremendously complicated. And so, I don't think Dr. Clark needs to worry about the difficulty that we'll have of expressing these findings in appropriate academic language, because there are important academic research problems here that are not covered and would, in fact, be glossed over if we ended up saying that the trouble is inefficient teaching.

Now these demonstration projects are very interesting. And from the point of view of parsimony at the level of where can we most effectively as a society begin to intervene, I couldn't agree more. It's certainly far easier to intervene at the level of the school than it is to intervene at the level of the home. We have more control over the teachers and the training of them, and there are fewer teachers, and they operate within an institutional framework where policy decisions can be made that will be influential. Whereas intervening at the level of the individual parent and the home would be an extremely costly and much less efficient procedure.

If by intervening at the level of the elementary and junior high school teachers we can accomplish all these results, we're just awfully lucky. By and large, changing schools can be done. Whereas if it turns out that we have to operate at the level of the home in order to remedy some of the difficulties that exist, then we've got a much more difficult problem as a society. And I just hope that Dr. Clark is right. I just hope that these demonstration projects will in fact be confirmed.

I would, however, like to raise some cautions about them. Social psychologists know about the Hawthorn effect where experimental programs when done as experiments and, as he says, with the all the hoopla that goes along with it, produced striking results; then when introduced as part of a routine everyday procedure they lose all of their apparent magic effectiveness that they had in the experimental situation. I hope very much that that's not true. Also, if we want to identify what it was about these programs that was effective, some important controls are needed. Dr. Clark is cynical about the efficiency of teachers of lower-economic level children. I'm afraid I'm a little cynical about the effectiveness of teachers of any child or of any psychologist or educator in knowing how to help him very much. I would not be surprised if it were found that the teachers in these particular experimental schools are less effective when joined with teachers in schools not specializing in the culturally deprived. Perhaps particular teaching methods that may work better in other circumstances don't work so well here. It may also be that, by and large, teaching methods are ineffective in general; it's at least a conceivable hypothesis that a lot of this education would take place without the schools also.

There are so many alternatives that I do think we should take with considerable caution the particular interpretation that Dr. Clark would put upon these findings. But, that's not really his main point, as I see it. His main point, I take to be, is that we need a great deal of objective research about what are the homes, what are the home environments, and what are the school environments of children in our society like? How can we describe them? How can we describe the educational process that takes place within the home or in the school in terms of variables that can actually describe the mechanism by which education takes place? And, if we do that, if we do that effectively, as researchers, then I think we will end up knowing much more about where we can effectively intervene to remedy this very real social problem. And the place that we can intervene is then a matter of strategy and access at the level of social planning. It's not necessarily to allocate blame at a particular point that we seek to determine the chain of events by which a child who enters first grade the equal of his classmates ends up at the eighth grade academically retarded.

PRESIDING

DR. KARL EASTON

COMMUNITY MENTAL HEALTH BOARD

DIRECTOR OF PSYCHIATRY

NEW YORK CITY DEPARTMENT OF WELFARE

Our next speaker is Dr. Martin Whiteman, associate professor of clinical psychology at Columbia University School of Social Work. His paper is entitled "Developmental Theory and Enrichment Programs." I think most of us are familiar with the pioneering and creative studies of the Institute of Developmental Studies under Dr. Martin Deutsch. Dr. Whiteman's paper will be discussed by Mr. Kenneth Marshall, Director of the Anti-Poverty Program of Paterson, New Jersey.

One of our major scientific challenges today is to understand the ways in which the social and cultural environment influences infant and child development. The problem, of course, is highly complex. A multitude of variegated factors have to be considered which include the quality and timing of the emotional interactions between the child and the important figures around him. Constitutional, hormonal, psychodynamic and organic factors play an important part. As a result of the studies of Spitz, Fisher, Province and Lipton and others, we are sensitized to the vital necessity of sensory and emotional stimulation in infant development. Poverty and overcrowding increase the amount of stimulation received by the lower class child, a point which Dr. Clark made very emphatically this morning. Later on, however, with continued overcrowding, large families, frequent absence of father figures, and the general lack of healthy developmental opportunities, the atmosphere may very well change from positive to negative. Now how does this pertain to adaptability which is one of our prime concerns here today? In a number of detailed studies approximately twenty points in mean IQ has been found between the highest and lowest socio-economic groups in these studies of children around three years of age prior to the time that they entered school. Of particular interest and relevance, however, is that no such differential in IQ is found between the highest and lowest socio-economic groups prior to the age of two or three. This means that by the time a given child from a lower socio-economic background begins his formal educational experience, he is likely to be at a learning disadvantage particularly with respect to his ability to use and understand language. Dr. Deutsch and his colleagues, which includes Dr. Whiteman, have amply demonstrated the existence of this initial lag in first graders and have shown that under conditions of a typical northern urban school it widens rather than narrows during the elementary school years. Again, Dr. Clark's comments in relation to this are very well taken. Of course, these and other observations have stimulated our Operations Head Start programs which are in the process of being implemented this coming summer. I believe Mr. Marshall may have some pertinent remarks concerning Operation Head Start in his discussion of Dr. Whiteman's paper. May I now introduce Dr. Whiteman:

DEVELOPMENTAL THEORY AND ENRICHMENT PROGRAMS

DR. MARTIN WHITEMAN

ASSOCIATE PROFESSOR OF CLINICAL PSYCHOLOGY

SCHOOL OF SOCIAL WORK, COLUMBIA UNIVERSITY

On my way to work, I often drive through East Harlem. There is a school on 111th Street and as I stopped for a light one morning I noticed two Negro children, about 10 years old I would say, having a bit of friendly horseplay before going to class. One child was banging the other over the head playfully with a notebook, which slipped out of his hand and fell into a puddle of water. The two children stared at the notebook and then suddenly turned toward each other with gales of laughter and walked off toward the school arm in arm and without the notebook. A policeman who had been standing nearby walked over to the puddle and stared at the notebook with some degree of disbelief.

An explanation of this event in developmental terms would have a social psychological emphasis. The work at the Institute for Developmental Studies under Dr. Martin Deutsch is based on such a conception. Fundamental to the idea is a discontinuity between school requirements and familial preparation. The child from a culturally disadvantaged environment has not had the chance to develop the verbal, conceptual, attentional, and learning skills which are part of the school requirements for success. These underlying skills play a vital role in understanding the teacher, in adapting to school routines, and in mastering such a fundamental tool subject as reading. With time, there is a progressive alienation of teacher from child and child from teacher. The child suffers from feelings of inferiority because he's failing; he withdraws or becomes hostile, finding the satisfactions he needs in his peer group. Notebooks may be left in puddles while the camaraderie develops. The teacher also feels inferior because she's failing too, but she can blame the family or she can assign her difficulties to what she considers the child's unteachability. This progressive alienation would then account for the cumulative deficit experienced by culturally disadvantaged children, i.e. the decline over time in the scholastic achievements and underlying intellectual abilities of these children.

This developmental conception has both research and action implications. From a research point of view, it would be important to examine very closely the relation between family background and cognitive and learning skills. On the other hand, one could study how these underlying abilities and motivations affect the performance of the child in the school situation. From an action point of view, it would seem reasonable to conclude that if the underlying abilities or learning sets are crucial in this developmental progression toward failure, an improvement of these skills through an early enrichment program at the preschool and kindergarten levels may be helpful in arresting or reversing the cumulative deficit. The Institute is engaged in both research and enrichment programs focussed on the cognitive learnings and abilities of these children. This, of course, dovetails with the above conception of linguistic and cognitive factors as crucial intervening variables between environmental impact on the one hand and scholastic achievement on the other.

Let us look at the research first. We have been studying the linguistic abilities of first and fifth grade children. One of the major aims has been to identify some of the specific familial and background variables which are related to the development of the underlying cognitive skills. Accordingly we have tried to obtain information about the child's social background which would go beyond the global fact contained in knowledge of the parent's occupation and education or whether he's Negro or white. At the fifth grade level, the kinds of background factors which correlated significantly with reading achievement are of a varied order. There are aspects dealing with the child's physical surroundings, for housing dilapidation is associated with lowered reading scores. Of course, motivational aspects are significant, for the parent's educational aspiration for the child is related to a higher reading score. The familial composition plays a role - the larger the family size the lower the reading score. Interaction and activities with parents and relatives are important. Thus higher reading levels are found among those children reporting conversations with parents during dinner or who have the opportunity to broaden their experiences by visits with parents to such cultural sites as zoos and museums. Finally, those children score higher in reading who have had the benefit of a kindergarten experience. Besides being related to reading, each of these six variables is significantly relating to the gross measure of socio-economic status derived from parental education and occupation. Children at the higher socio-economic levels tend to have more of these advantage-associated experiences: better housing, smaller families, a kindergarten experience, and conversational and cultural interaction with parents who have higher scholastic aspirations for them. If we look at the underlying abilities that are most highly correlated with reading at the fifth grade level, we find the three highest are: 1. intelligence (measured interestingly enough by the non-verbal form of the Lorge-Thorndike test), 2. vocabulary level, and 3. the child's general fund of information. Again the environmental conditions are all significantly related to these underlying abilities. One then has a sense of a developmental progression. A child is born into a family with a particular social background. He has the kind of experiences which allow him to develop certain cognitive and verbal skills and these in turn contribute to the subsequent learnings (in this case, reading) expected of him in school.

In order to pursue further the implications of the disadvantaging factors, they have been combined into a measure called the Deprivation Index. First of all, the Deprivation Index is clearly related to the cumulative deficit. There are no significant differences between our over-all first and fifth grade samples in I.Q.; however, this is an average result. If we divide the sample into those who score high on the Deprivation Index and those who score low, we find that the deprived group, which starts off with a lower I.Q., shows a significant decrease with age. However, the group which is more advantaged, as measured by the index, shows a significant increase in I.Q. with age. Second, deprivation is related to the self-concept. The more deprived children show the more unfavorable self-concept. This finding would be consistent with our formulation above, particularly if we note also that the more unfavorable self-concept is related to lower scores on the linguistic and intellective measures. If deprivation is related to lowered ability and achievement levels, and the latter results in feelings of inferiority, one would expect what we found - that there would be significant relations between the Deprivation Index and the self-concept measure. It is quite probable, though difficult to explore with correlational data, that the relation between performance, whether of the ability or the achievement variety, and self-evaluation is interactive - with the more negative self-evaluations producing as well as being produced by lower performance. In any case, it should be noted that there seems to be a developmental process here because these relationships between self-concept, ability, and deprivation emerge most clearly among the older children at the fifth grade level.

Third, a more advantaged environment seems to counteract other conditions which tend to bring achievement levels down. For example, differences between socio-economic levels on the linguistic and intellective measures are most extreme when there is strong deprivation. However, among the children who are relatively undeprived, as measured by the index, low socio-economic status per se is much less potent as a disadvantaging environmental factor. This, of course, suggests that it is not so much the gross socio-economic level that is deprivational, but the specific learning experiences that the children may have at a particular socio-economic level. A comparable finding is in the case of intelligence. Among the most deprived children, lowered intelligence has a more potent effect on lowering reading level than among those children whose backgrounds show relatively little deprivation. Finally in the case of the younger children - under the most advantageous environment, i.e. least deprivation and upper socio-economic level, we find that the Negro children score as well as the white children on the various language and intelligence measures. Under conditions of greater disadvantage, the Negro children tend to score lower than the white children.

Another example of the linkage between environmental disadvantage, cognition, and children's behavior in the school situation is afforded by the study of the children's comprehension of the teacher's speech. In this study, lower class children had more difficulty than middle class children in understanding segments of actual recordings of the teacher's speech made in class. In these short segments, words were randomly erased from the tapes. The child's task was to show his grasp of the sense of the passage by supplying the missing words. The cumulative deficit appeared again. The older lower class children did relatively worse than the younger lower class children. However, the data indicate that intelligence is a crucial intervening variable. These differences vanish when intelligence is controlled. One interpretation of these findings is that the intellectual differences at the first grade level, occasioned partly by social disadvantage, produce differences between the social class levels in their comprehension of teachers' speech. This results in progressively diminished understanding of the subject matter material by the lower class children. This in turn may produce slower intellectual growth in those children, which would be manifested in the cumulative deficits in intelligence as well as in teacher understanding among the older children.

If we were to summarize the implications of the above, it can be seen that the developmental, social psychological model can be a rather complex one.

Cultural deprivation, occasioned by the conditions associated with poverty, may result in some cognitive and learning deficits relative to the demands of the early grades. With early failure or difficulty in academic tasks, the child's self-confidence may be impaired so that learning becomes more difficult and unrewarding. The lowered achievement level may even feed back on the slower development of the originally lowered cognitive skills. A series of interactions between underlying abilities, overt achievements, and inward self-confidence may take place - lowered abilities producing lowered achievements, lowered achievements inducing diminished self-confidence, which in turn feeds back upon the achievements, and so on. If one adds the devaluations brought about by race-prejudice superimposed on poverty-prejudice, these processes may be accelerated.

At a more abstract level, the above process is reminiscent of Piaget's accommodation and assimilation paradigm and of Hunt's conceptions of intrinsic motivation. Piaget's fundamental notion is that intelligence comprises a series of hierarchically arranged cognitive structures. The sensory-motor schemata of the early years are structures derived from the actual physical interactions with environmental objects. With continued interaction and with the development of linguistic and symbolic functions, the essentially motoric schemata become internalized as concrete operations. With these concrete operations, the child from about seven to eleven years can mentally organize, integrate, and differentiate the concrete world about him. With further development, the concrete operations themselves become organized into systems of formal operations. The latter represent mental processes which allow the individual to explore possibilities, pursue hypotheses, and make systematic connections within imagined realities. Within each of these levels there is a process of accommodation and assimilation. The mental structure accommodates and changes to the variety of stimulation and problems presented to it; but it can accommodate only when there is a "match" in Hunt's terms between the internal schema or operation and the external task or requirement. Only then will the internal structure assimilate the environment. If the environment poses problems that are too difficult, the structure will not be able to assimilate it and accommodation or mental growth will not take place. Frustration and withdrawal will. If the problems are too easy, boredom and disinterest will prevail. From this purview, the period from six to ten is one where the concrete operations are being strengthened and integrated. If there is a continually poor match between the child's schemata and the subject matter which these schemata are supposed to assimilate, there will be little constructive accommodation, little growth of those underlying thought forms. The cumulative deficit in our study of the first and fifth graders may be the result of such a process. If one looks at the items of the non-verbal form of the Lorge-Thorndike intelligence scale on which the fifth grade disadvantaged children did relatively poorly, we see that the bulk of the items comprise representations of objects or geometrical figures on which concrete operations have to be performed, e.g., finding transitive relations, ascending to a higher order concept while disregarding the perceptually dominant bases for categorization, imagining spatial transformations, and the like. However, though it is labeled a non-verbal test, linguistic schemata undoubtedly play a part. Indeed, in our factor analysis of the fifth grade language tests, the first factor was defined by high loadings on the non-verbal Lorge-Thorndike, the Wechsler Vocabulary Scale, and another verbal test, the Orientation Scale, which taps the child's general fund of information. This is the same triumvirate, it will be recalled, that showed the highest correlations with fifth grade reading achievement. Among the younger children at the first grade level, there is a similar perceptual-linguistic factor derived from the non-verbal Lorge-Thorndike, the Peabody Picture Vocabulary Test, and the Orientation Scale. Initial deficits for the more disadvantaged children as well as cumulative age deficits were observed for this factor. Further support for the importance of linguistic and perceptual abilities derives from the findings from the Institute's enrichment program for nursery school children. Compared to the non-enriched controls, the disadvantaged children in the 1962-1963 group who had experienced four months of preschool enrichment showed significant differences on the Columbia Mental

Maturity Scale, a test of the ability of the child to make perceptual differentiations and on a receptive language measure, the Peabody Picture Vocabulary.

The foregoing therefore lends support to the Institute's emphasis on linguistic and perceptual enrichment in the preschool and kindergarten programs for disadvantaged children. Thus there is a good deal of attention paid to the labeling of objects, to the stimulation of the child's expressive and receptive speech through games and conversation, through play with toy telephones, and through listening centers where the child can play back tape recordings of teachers telling stories. Similarly perceptual experiences may be enhanced and diversified by a variety of manipulative games and toys of a perceptual-motor nature. Developmental theory of the cognitive variety can make a real contribution to curriculum development by suggesting sequences of linguistic, perceptual, and conceptual stages that may prove fruitful for the construction of programmed activities. It is understood, of course, that such sequences or activities are not to be applied rigidly nor are they meant to replace the more informal activities that take place in the doll corner or during snack time or on neighborhood trips; nor are they meant to be substitutes for concern with the child's physical or emotional needs. What follows are some suggestions for such materials and activities which are currently being devised or explored at the Institute and which stem from developmental formulations.

First, there is the problem of devising materials which would advance processes related to verbal representation of the perceptual world. The recent work of the Kendlers in discrimination learning, and the emphasis of Russian psychologists such as Luria on verbal mediation processes as regulators of one's own activities lends theoretical coherence to this problem. In addition, a recent factorial study by Meyers et al. of normal and retarded two-, four-, and six-year-olds consistently revealed a verbal and a perceptual factor at each age level and among both normal and retarded groups. An efficient way to merge these two factors may be to devise materials whereby perceptual differentiations may be expedited or at least accompanied by differential language labels. To this end some thirty pairs of perceptually similar objects were drawn. Examples of such pairs are a needle and a pin, a pair of pliers and a pair of scissors, a pear and a light bulb, a horse and a mule, a mitten and a glove. With such materials, the child can be given experience in grouping together those that look alike. At the same time, he can learn to differentiate the two members of a similar pair either through the different labels assigned to each member ("this is a mitten and this is a glove") or by being shown the perceptual differences and labeling them ("the glove has fingers, the mitten doesn't").

A second type of material stems from Heinz Werner's conceptualization of thought as progressing from sensory-motor to perceptual to more representational levels. One possibility is to take contrasting forms, say triangles and rectangles, and have the child progressively experience these two forms in these three levels: Level I, the sensory-motor level, would find the child setting in triangles and rectangles into appropriate wooden recesses. Level II, the perceptual level, would have the child match triangles and rectangles to appropriate pictures of a triangle and a rectangle. Here the motor cues stemming from fitting the shapes into the recesses will have been eliminated, but the perceptual cues derived from the models are preserved. As a possibility, at the more representational level, the triangles may be concealed in one place, the rectangles in another and the game would be for the child to go to the right place when the teacher or another child says "triangle" or "rectangle." In this situation both motor and perceptual cues are minimized.

A third possibility is derived from Piaget's concept of decentering, i.e., the ability to look at or conceive a given situation from different perspectives. It is an extremely important concept in Piaget's view insofar as it appears in so many different contexts. A child decenters when he can represent how the other side of the miniature mountain looks to someone standing behind it; he decenters when he can shift from the increasing height to the diminishing width of the glass to which the fluid is poured in the conservation experiments; and he decenters when he can take different points of view in social interchange.

At a more elementary level, this ability may involve seeing that a given object may be small relative to a larger object, and large relative to a smaller object. The basic sequence as it is now being planned consists of four levels. At the first level, a blue square is presented alone and perhaps introduced with some name, e.g., "bluie." At the second level, the blue square is presented together with large squares so that the blue square is experienced as small. At the third level, the blue square is presented with small squares so that it is experienced as large. At the fourth level, the blue square is presented simultaneously with both the larger and smaller squares. The child then has the opportunity to learn the relativity of the original blue square when he is shown that it is large relative to one and small relative to the other. Clearly the younger children will have had a good deal of perceptual-motor experience with graduated sizes, e.g., while manipulating color cones or nesting cups or form boards before moving on to these comparative-linguistic levels.

The concept of decentering can also be applied to situations involving categorization. Children, before the concrete operational stage, have difficulty shifting from one basis of abstraction to another, i.e., spontaneously categorizing a group of blue squares first in terms of their blueness and then in terms of their squareness. However, form boards or flannel boards or lotto-like cards may depict circumstances where he has the opportunity to make simple alternative sorts based on very concrete perceptual attributes - for example, first sorting by color, i.e., placing the blue squares in the appropriate recesses or spots next to the blue circles rather than the yellow circles; then sorting by shape by placing the blue squares next to the green squares rather than the green circles; then sorting by size by placing the small blue squares next to the small blue circles rather than the large blue circles.

The immediate purpose of such materials and sequences is not to raise I.Q.'s nor to facilitate reading skills. Their purpose is more simple and more basic, i.e., to afford the child a series of encounters 1) with an environment that keeps pace with his growing intellectual capacities, and 2) with grown-ups who understand his intellectual needs as well as his physical and emotional ones. Under these kinds of conditions, he may learn how to learn in two senses; first, by developing specific learning sets that enable him to handle the kinds of intellectual demands that will soon be made of him, and second by developing the zestful orientation toward learning and toward himself that a more advantaged child can more easily obtain in a more advantaged home.

By way of some concluding and summarizing remarks, let me cite some of the important research that is being carried out at the University of Chicago and has been reported on recently by Bloom. Thus Wolf has secured ratings on 13 process variables descriptive of the interactions between parents and child and hypothetically related to intellectual growth. These are:

A. Press for Achievement Motivation

    1. Nature of intellectual expectations of child.
    2. Nature of intellectual aspirations for child.
    3. Amount of information about child's intellectual development.
    4. Nature of rewards for intellectual development.

B. Press for Language Development

    1. Emphasis on use of language in a variety of situations.
    2. Opportunities provided for enlarging vocabulary.
    3. Emphasis on correctness of usage.
    4. Quality of language models available.

C. Provision for General Learning.

1. Opportunities provided for learning in home.
2. Opportunities provided for learning outside the home (excluding school).
3. Availability of learning supplies.
4. Availability of books (including reference works), periodicals, and library facilities.
5. Nature and amount of assistance provided to facilitate learning in a variety of situations.

Wolf found a multiple correlation of .76 between ratings of the above factors and the I.Q. measure of 60 fifth grade students. A similar study by Dave found a correlation of .80 between familial measures of the above type and achievement test performance of fourth graders. To my knowledge, these are the highest correlations found in the literature on the relation between family life variables and children's behavior.

Several points may be made regarding the results of the above studies.

1. An analysis of the specific parental expectations for learning, and of assistance given by parents may prove of greater explanatory value than such global status measures as education or occupation of the parents. In the Wolf and Dave studies, the correlations between parental and social status and child's performance is less than the correlation between the process variables and the child's achievement.

2. The specific features of the home background relating to child's performance show considerable independence of the social status of the home. This implies that even within the lower socio-economic levels, the quality of the child's environment and of his interaction with parents may ameliorate the generally depressing effect of low income level. In short economic disadvantage does not necessarily connote

motivational or cognitive disadvantage.

3. The specific familial features cited above seem to have a cumulative effect. It does not appear as if one or two isolated parental or familial characteristics are most important, but that a cluster of such characteristics have potent effects. Note that the findings in the above studies are obtained by means of multiple correlations or composite indices expressing the action of a number of variables. It suggests that an array of influences, relatively weak when taken singly, exert their maximum effect in combination.

4. The emphasis in the above studies on cognitive stimulation and achievement striving should not be construed as implying that the affective aspects of the home are inconsequential. It is quite likely that cognitive stimulation is most effective when combined with affective warmth on the part of the parents. Baldwin et. al. for example have found that parental democracy and warmth in relation to the child was associated with higher intelligence ratings on the part of the latter.

5. These studies as well as previous findings by such investigators as Sontag et. al., Milner, and Irwin suggest that factors influencing intellectual growth include verbal interaction with, and linguistic stimulation by parents, warmth in the parent-child interaction, parental encouragement of intellectual achievement, and suitable provision for learning experiences in the home.

6. From a theoretical viewpoint, the above empirical picture finds support from the work of Hunt. The latter espouses a conception of intelligence which stresses its evolving nature and its interactive origins. Drawing heavily upon Piaget's theoretical formulations and empirical observations, Hunt has stressed the idea of intellectual growth as enhanced by successive and successful encounters with situations that contain enough novelty to arouse interest but enough familiarity to preclude frustration and with-

drawal. If there is a "match," as Hunt calls it, between the adaptive repertoire of the individual and the situational demands, then the ensuing successive encounters occasion the development of motivational and cognitive structures in the child. From this vantage point, a home (or a planned program) that provides activities and materials that effect this "match" between internal stage and external challenge should result in intellectual improvement. Hunt's analysis is most applicable to understanding the development of intrinsically pleasurable activities as the child gains mastery over the physical world. His views can be complemented by those of Bandura and Walters who have amassed a considerable body of observational and experimental evidence to show the importance of external, socializing agents in the social learning of the child, i.e. learning which is socially instigated, socially reinforced and develops through imitation of suitable adult models. It seems plausible then that profound differences between children may be ultimately traceable to differences in the intrinsically reinforcing materials, activities, and encounters "programmed" by the parents, to the quality and timing of parental reinforcements, and to the role models which the parents themselves exhibit to the child.

DR. KARL EASTON:

Mr. Kenneth Marshall will discuss Dr. Whiteman's paper. Mr. Marshall is director of the Anti-Poverty operation in Paterson, New Jersey and was formerly director of the HARYOU-ACT program. Mr. Marshall.

DISCUSSANT

MR. KENNETH MARSHALL

DIRECTOR, ANTI-POVERTY PROGRAM

PATERSON, NEW JERSEY

When Dr. Eagle asked me to comment on this paper I didn't know what I was getting myself into. The last I saw of Dr. Eagle, we were both in educational psychology at City College. I now realize, Martin, (Dr. Whiteman) how far I've strayed from the educational folds. I must confess that a lot of this material is Greek to me. I must also say that my comments may not be directly responsive to many of the technical elements of this paper.

I feel that one of the first things we have to realize and remember when we talk about the children from these culturally deprived homes or socially disadvantaged homes is that it has been demonstrated time and again that when they are exposed to good teaching, when they are exposed to teachers who are able and competent to emphasize and feel into their situations and understand their language and their world, they are able to learn. I think there is, and I sense, Martin, some slight bit of predestination or that these children are foredoomed when you say there are certain kinds of positive structures which are more or less set at a certain period. These structures then serve as a screen for all the rest of time through which learning is not going to be channeled through as easily as with other children for whom the cognitive structures have been more adequately established. I think that when we look at such situations as the fact that during wartime we were able to have practically everyone employed and many of these people were unskilled, but were quickly taught skilled functions; when we look at the fact that certain experiments in culturally deprived communities have demonstrated that youngsters can be taught with nothing particularly exceptional about what goes into teaching except the fact that the teachers are teaching; when we look at youngsters and really get next to youngsters, such as gangs, kids who devise very colorful, very insightful argots; we know that these people are able to conceptualize, are able to have insights. So that I would say here, that one of the major concerns that I have found, and one of the major questions, although I say first that I am not competent to address the specifics of the technical points being made here today in this paper, but one of the concerns that I have is that we may be addressing ourselves to one component, one of the variables without sufficient evidence, at the same time taking into consideration many other variables that affect the way the children learn in our ghetto and schools. I think, for example, I would pick one so simple as gradations in skin color. When I have gone into some of these classes and I note who are in the rapid classes, and who are in the slow classes, I would say that something in the response of the teacher to very dark children or children who are not properly dressed or properly washed also has some bearing here too. And maybe a far more important variable than some of these cognitive factors that we are looking at so precisely and so carefully.

I don't know that I need to go on here. I think I have set the picture that I would make and would add to this, not that we would take away anything that would be presented from this research, but we would add many other variables and I think we would add variables that are far more important than certain cognitive deficiencies in the psychological make-up of youngsters from disadvantaged homes. Thank you.

DR. KARL EASTON:

Thank you very much, Mr. Marshall. I would like to make one point before we recess for a coffee break. My feeling about Dr. Whiteman's paper is that it does point out the peculiar challenges and difficulties which teaching in the ghetto schools do present to the teachers. I think in listening to convincing speakers, such as Mr. Marshall and Dr. Clark, you might have the tendency to forget that. The problems of teachers in the ghetto schools are very considerable. That doesn't mean that we shouldn't stimulate and encourage more creative teaching. I think that in Operation Head Start, the Board of Education is sensitized to this problem. There should be increased focussing upon this aspect so that as time goes on we can increasingly try to develop different kinds of teaching efforts and endeavors.

PRESIDING

DR. DOXEY WILKERSON

ADJUNCT ASSOCIATE PROFESSOR OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND GUIDANCE

FERKAUF GRADUATE SCHOOL OF EDUCATION

I think that those of us who sat through the morning and early afternoon sessions will agree that some issues have been pretty well defined and fairly drawn and that this afternoon, which is devoted largely to more informal discussions of these issues, should be an exciting part of our program.

We all are losers by the fact that Mike Harrington, who was scheduled to speak now, is ill, and is forbidden by his physician to attend any meetings. We will seek, however, to exploit his absence by fuller participation on the part of the people who are here in expressing their views than would have been possible had that not been the case.

Our plan briefly is this: A member of our faculty -- I'll introduce him, if he'll come back -- is going to make some summary remarks. We notice that a number of our speakers and discussants are still with us. Earlier I sensed some sparks flying here and there among them, which we would like to encourage after the summary presentation. They will be given an opportunity to make whatever comments they will on whatever has gone before -- anything they care to say, and questions they care to address to one another. Following that, anyone in the audience who wants to get into the discussions or ask questions or make comments will have an opportunity to do so.

Now, for summary remarks and comments on the proceedings thus far, I present to you the chairman of our Department of Educational Psychology and Guidance, the director of our Project Beacon (an umbrella under which many kinds of things happen), consultant to the United States Commissioner of Education on the education of disadvantaged children, and a lot of other things that I won't enumerate. Dr. Gordon is the man who played the primary role of leading the Ferkauf Graduate School of Education into the area of developments to which our discussions today are addressed. Dr. Gordon.

SUMMARY AND DISCUSSION

DR. EDMUND W. GORDON

CHAIRMAN, DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND GUIDANCE

FERKAUF GRADUATE SCHOOL OF EDUCATION

Thank you, Dr. Wilkerson, and a word of appreciation to those of you who have tossed out the ideas so far, and those of you who have listened. I'll get right to the point.

It is obvious that we are dealing with two categories of problems today. One of these we may call political; the other I prefer to call pedagogical. The political may be easier to deal with; so I'll tackle it first. Dr. Clark has suggested that if we could do all that we know should be done for public schools today, we could greatly reduce, if not abolish, the problems of youngsters who are academically retarded in our schools. And I think that at this particular period in history there is a great deal of validity to this kind of argument. This is a period during which it is very likely that if enough social, political, intellectual pressure can be brought on our society, we may be able to make available to all youngsters in our schools the quality of educational experience that has been traditional in some of our better schools. Some of this is already on the way. Some of my colleagues and I have been looking at programs of compensatory education around the country. It is interesting to note that most, if not all of these programs, are attempting to build into them programs for disadvantaged youngsters. Some of the things are what we knew five, ten, twenty years ago; some of the things are what are available in some of our better schools. We are getting some results. However, if we permit our conviction that we have the answers, or expect the present faddism that is developing around services to the disadvantaged to give us too much comfort in this knowledge, we may end up losing the political problem. And I think some of it is quite possible within a few years when we begin to be called to account for the money and additional resources and additional time that we are pouring into the educational services for disadvantaged youngsters, and we are still confronted with the fact that large numbers of youngsters haven't made it, it is quite possible that we will have to be cut off, interest will be cut off, and age-old theories of hopelessness, of intrinsic inadequacy will redevelop or rearise, based upon the argument that in this period when we had an opportunity to do what ought to be done, we did what ought to be done and were not able to do the job. This leads us head on to the pedagogical problem.

Not having enough to do here at Yeshiva in the late fall, I agreed to accept a consultantship of the Office of Education around problems of disadvantaged children. Any one of the early questions put to me by Mr. Keppel was one that was born of his anticipation of certain aspects of the new education bill that was recently passed. He wanted to know what are the kinds of things we ought to be building into our potential, supplementary centers, and eventually into our public schools, that would solve the problem of poor kids who are not learning. I had to verify quickly that I don't know, and I think that if we took the gems of wisdom, the research reports that have been represented this morning, took our best thinking, and had to translate them today, into the most appropriate practices which insure that education meet its new challenge of ensuring equality of educational achievements for youngsters across the board in this society, I don't think we could answer the question. Yet we are confronted with just this problem. In years past, we have been able to hide the failures because society had been able to absorb them. But it is perfectly clear that for the future, we cannot do so. Society will no longer permit us as educators to fail to educate large numbers of people. I submit that the very best that we know how to do today will not achieve that. We have never achieved it even for the most advantaged of our population, and it may be that while we are being confronted now with the task of focussing the attention on the problems of the disadvantaged youngsters we may begin to solve some of these fundamental questions in the science of pedagogy. It is out of the work of persons like Dr. Forgays, Dr. Clark and Dr. Whiteman, and much of what they have reviewed that we must turn if we will now raise the question of translating what we are developing first, the kind of knowledge, theory, fact, which is necessary for translating these into operations which teachers can use with youngsters.

I was particularly interested in the experiments such as Dr. Forgays has been conducting in which he established evidence for some of the thinking that has guided our work here in Project Beacon. We have assumed that youngsters who grow up under differential conditions of life, youngsters who suffer certain kinds of economic deprivations, youngsters who are traumatized to some extent by an inferior caste status cannot be expected to automatically develop in the same way the same characteristics, the same patterns of intellectual and social functioning as children who grow up in different life conditions. Dr. Forgays' work suggests that there may be some validity in this assumption. Our task of course is to establish this fact.

It probably would be in a sense rather good if we would say that conditions of life don't make a difference in the developing organism. It would certainly make us feel a lot less guilty about the extent to which we have deprived certain individuals of our society. But it is a fact, I think, that to remove or exclude from the experience of an individual experiences which we generally recognize lead to the development of certain types of confidences, of skills, and to expect the person who has been deprived of such experience, such opportunity to nonetheless have those confidences and skills, is to go back I guess to a kind of instinctive theory which suggests that man cannot even in his most drastic efforts modify that which is God given. I don't think that poor Negro kids, poor Puerto Rican kids, or poor white kids have the kinds of early experiences that privileged kids have when they come to school, or have the kinds of competences that we school people have designed our program for.

Now, to go back to the political argument for a minute, I think there is a difference between a position which holds that youngsters who grow up under different conditions develop different characteristics and a position that holds that they are necessarily inferior or necessarily hopeless, or necessarily deficient. It may be that if our school techniques and school procedures were designed for these youngsters who have grown up as what we now call the socially disadvantaged, then the youngsters who have grown up under what we now call more privileged circumstances, would be disadvantaged in that learning situation. I would rather think of it as the task of those of us who are responsible for educational experiences for such children to begin to match the learning experience, using Dr. Forgays' frame of reference, with the subject characteristic. This means that we begin to look at some of the kinds of material that Dr. Whiteman is reporting, material that relates to the correlations which exist between certain life conditions and certain patterns of functions, not being content however, to settle for the fact of correlations, because we know that the fact of correlations does not necessarily indicate causation. The next step, and one which I think this work leads us to, is an examination of the relationship between these conditions of life and certain patterns of intellectual and social function and their relation to the learning process. He very correctly draws our attention to the possibility of a dialectical relationship between these, where one influences the other, and the possibility that we are dealing with clusters of environmental conditions, and clusters of subsequent behavioral patterns. To go back to my original point, we do have two problems before us today. One is the political question of what we can do now with our present body of knowledge. All of us know that what we are doing is not all that we can do. We have to take the next step, what I would consider the more important step, of answering some of the more fundamental questions about the science of pedagogy, upon which science we can advance educational opportunities for all people.

DISCUSSION

DR. LAWRENCE PLOTKIN

DR. MARTIN WHITEMAN

DR. PLOTKIN:

I've hardly been able to restrain myself. Some of you know that I prepared another speech for today which I did not give and it must come out. I did want to address myself to Dr. Whiteman specifically, but also to a general point of view in psychology which I find disturbing. I like to think of myself as a kind of theorist too as well as someone engaged in social action research. And if you will permit me, it is precisely from the point of view of developmental theory, of how human cognition develops, that I seriously question the work being done at the preschool level. You see, whatever the deficits are in children of low socio-economic status, they are not as great initially as has been alleged. For instance, in the Public Education Association comparison between predominantly white schools and predominantly Negro and Puerto Rican ones, the difference is only 1.2 grade years in reading at third grade, but is 2.2 years at the sixth, and 2.4 at the eighth. In other words, the deficit scissors. Similarly, the HARYOU report, Youth in the Ghetto, confirms this pattern for reading and other skills. Whatever the initial differences, they increase with years of schooling.

Now let me take a moment to review developmental theory from the point of view of Heinz Werner, Piaget, and Hebb. Early experience leads to the development of sensory and motor skills. There is a very long apprenticeship; many years of experience are required for the attainment of the abstract attitude.

We know the gross conditions which preclude the development of abstract thought. Abstract thought is non-sensory. There is a hyphen there. It's not concrete; it is general. There is no localized mnemonic trace in the brain. The apex of human thought is abstract thinking. This symbolic process is what the schools must develop, because we know that where there are no schools, where there is no education, abstract thought does not develop. It does not develop under conditions of brain damage. It does not develop in primitive societies without abstract language. It does not develop in societies without industrialization. I would say school is the place in which this thing develops, set within its cultural context.

Now, to be comparative is also to be comparative in phylogenetic development. In discussing Dr. Forgays' experiments, I pointed out then that Negro children are mammals, high order mammals whose brains are made for plasticity of learning. Whatever differences between them and white children that existed in the brightness discrimination are quickly wiped out, without nursery school training. All you need are six trials. If we go back, we know from Harry Harlow's work that the infant monkey makes shape discrimination without experience. This has also been demonstrated with human infants. These discriminations are not abstract; they are sensorimotor. Such differentiations can be made with the proper reinforcement.

Dr. Chein has pointed out that there are problems in developing motivation and environmental interaction, which I won't go into. It seems to me that it is abstract thought, not sensory performance, which is important; of course, sensory and motor performance lead to abstract thought in ways in which developmental theory has not yet worked out completely. Let me give you an example. Any bird sees better than any human, but they're bird brains. Any fish that lives deep in the water smells better than human beings, and its brain is a great big olfactory bulb. Sensory function is not a high-level development; sensory function is a low-level developmental characteristic. From the point of view of motor behavior, I don't care who the child is, what culture develops it, he learns to walk, run, skip with distinction. You may laugh, but you know these obvious facts. As a matter of fact, I'm doing a study now which will show that cultural deprivation leads to enhanced sensori-motor skills. I'm counting the number of boxers who are Negro, the number of baseball players who are Negro, the number of basketball players who are Negro. You will find Negro incidence here greater than their incidence in the population.

So the real problem is the application of developmental theory which recognizes that years of experience in certain kinds of environment are necessary. Now to get to the point. What disturbs me is the rather large investment in preschool education as a compensatory educational technique. I have nothing against nursery school and I know its value, having paid the bills for three children thus far. I question, however, placing all our bets on preschool experience, for no I.Q. gains have been demonstrated in white children as a result of nursery school experience, nor to my knowledge has anyone taken the trouble to collect the data of Negro children in day-care centers and later school achievement which would answer the question of early intervention. With limited funds, limited energy, limited genius we can improve the deficit either by concentrating on one area which may be the wrong critical area, or many areas. However, plausible as it seems to intervene at an early level, because we all know that you can change people at early levels more easily than you can later, we should not exclude the latter. Preschool experience, however, is sensory, it is motor, and where it is verbal, children hardly talk to each other and the teacher hardly talks to them.

I would raise as an alternative the investment of the same money, the same time, the same energy at those grades in the school system between the third and sixth grade where all the evidence indicates that not only is the abstract attitude beginning to be attained, but it is precisely at this point that the deficit begins to show up in gross magnitude. I'm sorry to have taken so long.

DR. WHITEMAN:

Just a word or two about some of the developmental considerations in the expenditure of time, effort and money for intervention at various points in the life cycle. For one thing, the work of Dr. Bloom has been cited very admiringly this morning. One of his outstanding points, powerfully made, deals with the differences in I.Q. which can be traced to environmental variations. He estimates, drawing on a number of different sources, that the maximum environmentally induced difference is about 20 points. Now this deals, of course, with natural environments rather than synthetic or artificial environments. The differences may increase under the latter kinds of conditions. We don't know as yet. Some of the enrichment programs which have been reviewed in Bloom's new volume on cultural deprivation and enrichment programs cite a number of studies in which apparent I.Q. changes do take place around the 20- or 25-point mark. My point is this. If the 20-point I.Q. difference is one that we can shoot for, or is a reasonable estimate of differences between high- and low-level environments, then one should perhaps accept Bloom's other point which he has developed very clearly -- that most of the difference in I.Q. does take place very early. If one studies the relationship between the age of the child on the one hand, and the percentage of intellectual change due to environment on the other, it would be quite sharp. About 50% of the 20-point variation is traced to the first four or five years of life. So that the point at which environmental change is to be induced clearly would be at the lower age levels. Of course, it is all right to quote Bloom in one context, but I think this other context would be exceedingly important too, in order to bring in some of Bloom's most salient findings.

The second point deals with what might be called a sleeper effect. Simply because there is relatively little change at level one and larger change at level two, does not, by any means, mean that the level one change is not an extraordinarily important difference. The school curriculum has a kind of hierarchical structure. To a certain extent, it is good teaching not to learn A before you learn B, B before you learn C, and so on and so forth. Relatively minor differences between individuals at earlier stages begin to accumulate at later stages, so that the difference between various socioeconomic levels may be greater at the later stage than at the earlier stage. Again the importance of early intervention is indicated.

Another point deals with this whole business of Negro-white differences. Our findings show that the Negro-white differences, once socioeconomic status is controlled, begin to vanish or are very sharply attenuated. It is these kinds of socioeconomic variables that I have mentioned, both in the Wolf study and in the research we are doing, that are exceedingly important, rather than Negro-white differences per se. There is a distinction here between intervention on the one hand and etiology on the other. As far as I can see, if one puts forth a particular intervention program, this does not, by any means, rule out the importance of the etiological factor. For example, if I have the flu and if someone comes along with penicillin and cures me of that flu, this does not mean that there is not a whole etiological history contributing to my developing that flu -- constitutional weakness, exposure to germs, etc., etc. The correlations of .75 and .80 between various environmental-familial factors and intellectual and academic achievement have this kind of etiological importance, and early interventions directed against such background factors are clearly indicated. It is a sad conference when people who disagree very basically find themselves pulled together by someone who says, "It's all a difference in semantics," but let me do some pulling together anyway. I couldn't agree more with an intervention program in the years eight to eleven. I couldn't agree more with an intervention program earlier. I think the earlier one would be very important, but it would not do any good if the kinds of conditions in the school, which Professor Clark has referred to, hit these children at these particular age levels -- from eight to eleven. On the other hand, all other things being equal, if these children have suitable kinds of linguistic and perceptual experience at an earlier age level, perhaps much less of the kind of enrichment program that Dr. Clark refers to would be needed. Also more of the children who would not be benefited by the enrichment program at later age levels would be helped if they were to receive early enrichment.

Another point, of course, deals with the whole conception of the development of the child. And here, the stage differences that I talked about can be misleading. When I spoke about concrete operations, I did not mean that the lower class child or the Negro child can not develop concrete operations. I'm dealing here essentially with the rate of acceleration, with the rate of development. It does not mean that the disadvantaged child is at a completely lower motor level. I am dealing with the fact that there is evidence that the low socioeconomic status children are somewhat retarded in the development of these kinds of operations. Nor is it at all clear that these kinds of operations are defined once and for all by one general kind of factor. Take the conservation of substance for example. We find that younger children can conserve substance in the case of a rubber band which is stretched and pulled back. They can see that the same amount of rubber is there as contrasted with the material used in the classical Piaget experiments. This illustrates the importance of experience, of certain kinds of experience which clear the way for later experiences. If any of the research on changing conservation conceptions has meaning, it would seem to show that there are children predisposed toward the improvement of their conservation tendencies. These are the children who begin to change. To the extent that one can predispose through early intervention some of these children who come from disadvantaged families, to change, to that extent we will be successful.

The final point deals again with what may be called the "sleeper effect," which relates very much to the kinds of stimulation and environment these children get. If you take reading -- reading is an awfully complex process. The factors, the underlying factors that involve reading at lower age levels, are quite different from the factors that involve reading at older age levels. At lower age levels they are perceptual; or at least the perceptual factors are as important as the conceptual. As one goes higher up in age level, conceptual abilities become more important, but the perceptual levels are necessary stages for the attainment of the conceptual stages. All of which points up the importance of perceptual training. Also, training at the earlier, perceptual levels may not have apparent effects at first. But these may become quite apparent later on. Indeed, some observations by McV. Hunt, as recounted in his book on intelligence and experience, are in line with this. He points out that in some of the schools that he had served as consultant children had received very intensive perceptual-motor play with blocks. He looked for improvement in arithmetical skill among these children in the first and second grade, but didn't find it. But he did find that these children who had received such preschool and kindergarten training did improve in the later grades. Earlier perceptual-motor experience had contributed to subsequent conceptual elaboration.

So I think that there are a number of points that can be made, a number of arguments that can be brought forth, both from intellective and developmental considerations, regarding the importance of preschool enrichment.

PROJECT BEACON
(A Summary)

Project Beacon is an effort to introduce within the public school system of the United States a permanent corps of psycho-educational specialists who have been rigorously trained to meet the educational needs of socially disadvantaged children and their parents.

Project Beacon consists of a long-range program that attacks the problems of these populations through: (a) behavioral science research into the relationship between learning and social disadvantage; (b) graduate level training of psycho-educational personnel (school psychologists, educational psychologists, guidance specialists, administrators and supervisors, teachers of regular classes, and teachers of special classes) for work with socially disadvantaged children and their parents. The Project represents the collective efforts of three departments at the Graduate School of Education, Yeshiva University.

The children that Project Beacon seeks to help are found largely in depressed urban areas but also have their counterparts in our growing northern suburbs, and in the rural south, southwest and midwest. They are largely members of Negro, Puerto Rican, Indian and Mexican-American minority groups.

The disadvantages usually encountered in these children consist of improper learning habits and obscured vocational and personal goals which handicap them in their efforts to master traditional academic tasks; inadequate preparation and motivation for the achievement of those competencies basic to future success in an advanced technological society; and conditions of life which operate to discourage or preclude the practices and values which have become traditional prerequisites to adjustment and achievement in the mainstreams of our society.

Although Project Beacon takes into account the necessary social modifications which will be required for a maximal attack upon the problems posed by socially disadvantaged status, the Project itself is based upon the assumption that much can be done in the present context through the appropriate efforts of properly trained public school personnel. Through Project Beacon we seek to:

1. Improve the educational achievement levels of children handicapped by social disadvantage; and

2. Enhance preparation and add new dimensions to career opportunities for personnel who accept the challenge of working with disadvantaged children and their parents through the public schools.

These goals are pursued through the development of competence and skill in four basic areas by Project Beacon teacher-students:

1. Psycho-educational appraisal: through which the existing intellectual abilities and weaknesses of the children are identified along with those patterns of adaptation which foster academic learning and personal adjustment;

2. Psycho-educational management: through which the results of the appraisal are used to design and introduce individual and group learning experiences appropriate for the modification or

circumvention of learning disabilities and for the utilization of existing learning abilities;

3. Psycho-social intervention: to nurture and direct interests and motivation, to provide guidance and support, to reward and reinforce, and to create the climate and conditions appropriate to maximal growth;

4. Behavioral science research: to pose questions, collect data and interpret results in a continuous process of verification of each aspect of the program.

Within the framework of these four emphases, a number of graduate training programs have been developed in the departments of Curriculum and Instruction, Special Education, and Educational Psychology and Guidance at the Graduate School of Education. In addition to the training aspects of Project Beacon, several demonstration, curriculum development, and research programs are under way or anticipated.

Detailed statements on all Project Beacon training programs and research and demonstration studies can be obtained from Project Beacon, Ferkauf Graduate School of Education, Yeshiva University, 55 Fifth Avenue, New York, New York 10003.

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